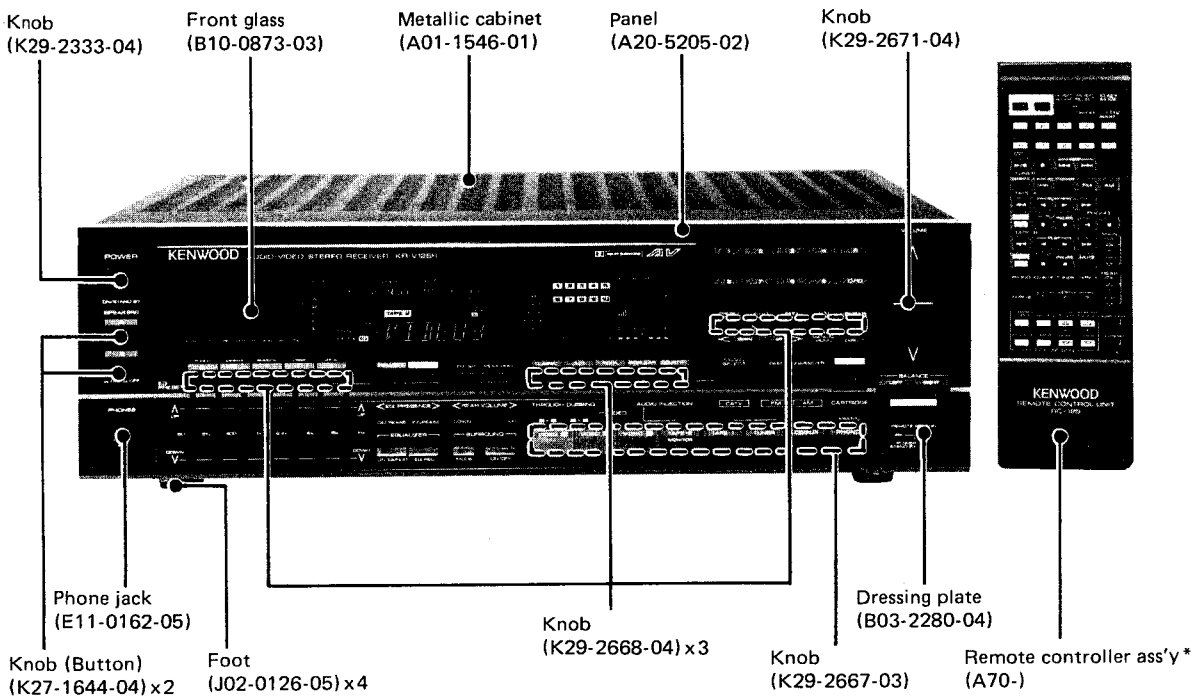
AUDIO-VIDEO STEREO RECEIVER

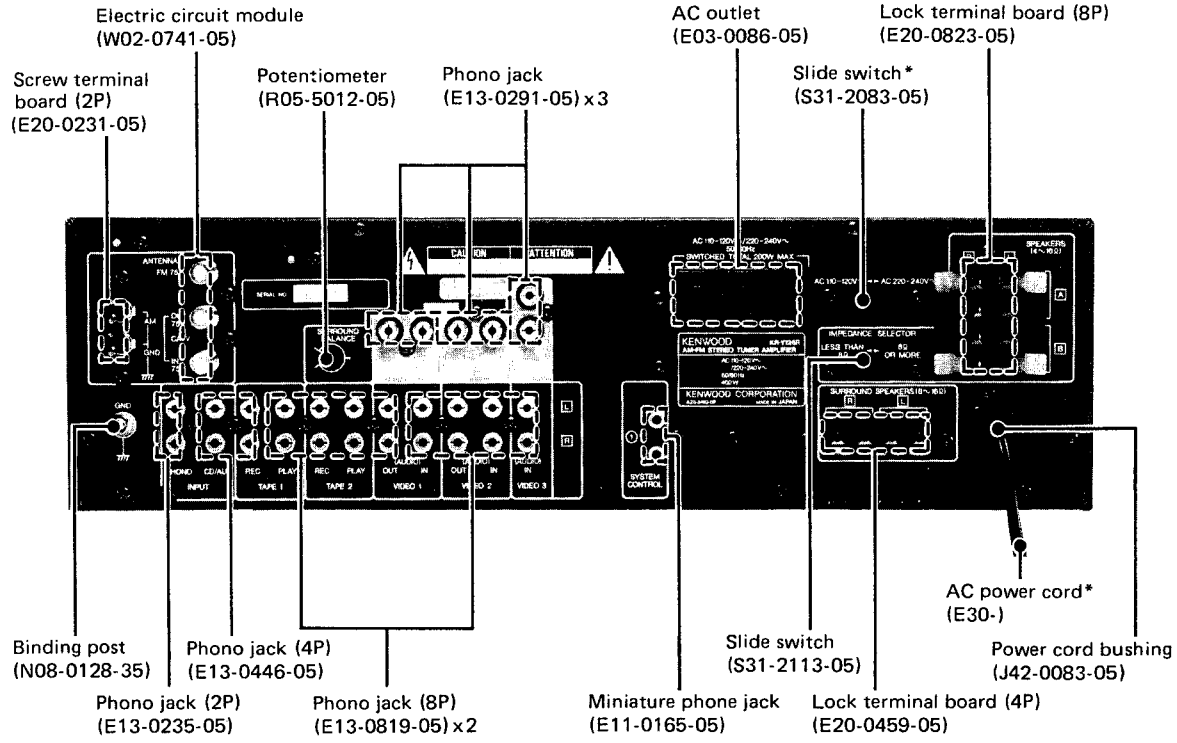
KR-V126R

SERVICE MANUAL

KENWOOD

©1987-7 PRINTED IN JAPAN
B51-3234-00 (O) 1548





* Refer to parts list on page 47.

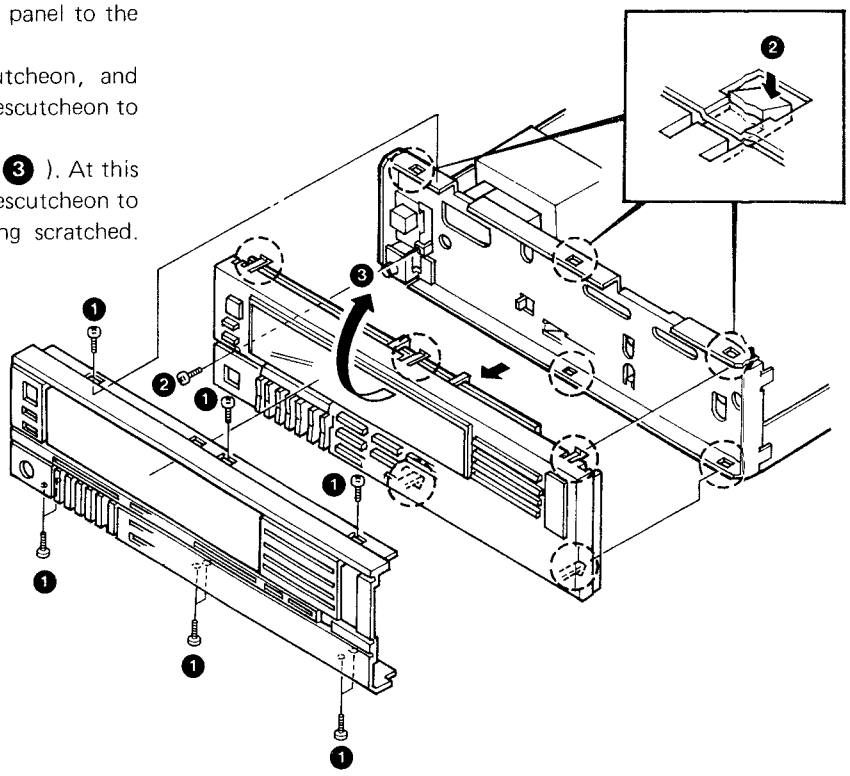
KR-V126R

CONTENTS/DISASSEMBLY FOR REPAIR

DISASSEMBLY FOR REPAIR 2
BLOCK LEVEL DIAGRAM 4
CONTROLS AND INDICATORS 5
CIRCUIT DESCRIPTION
Description of components 9
Microprocessor : μPD75108CW-041
(X14-2130-10 : IC1) 11
Indicator tube : FLP20AMW30
(X14-2130-10 : FL1) 15
Test mode 16
Initialization 16
Selector tuner 17
ADJUSTMENT 20
REGLAGE 21
ABGLEICH 22
ADJUSTMENT/REGLAGE/ABGLEICH 23
VOLTAGE CHECK TABLE 24
PC BOARD (COMPONENT SIDE VIEW) 25
PC BOARD (FOIL SIDE VIEW) 29
CIRCUIT DIAGRAM 36
EXPLODED VIEW 45
PARTS LIST 47
SPECIFICATIONS . . . . . BACK COVER

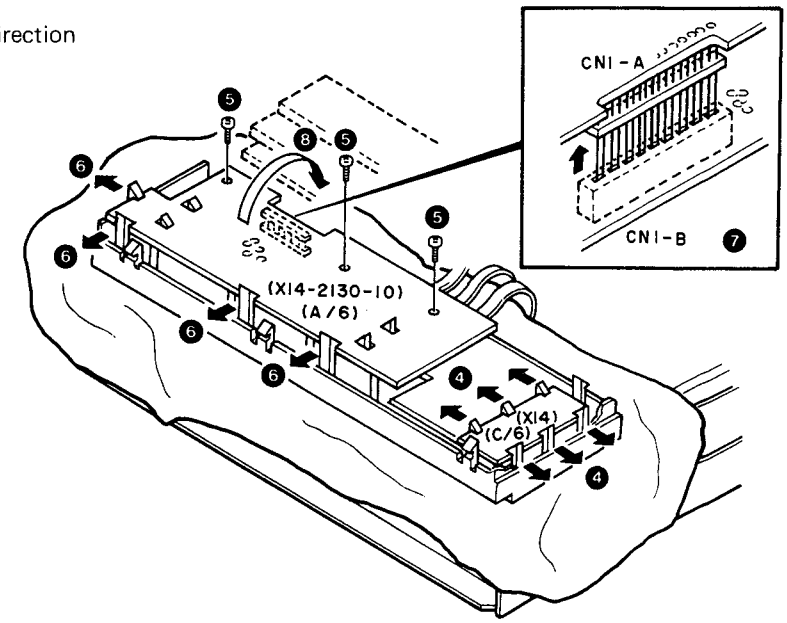
(Remove the metallic cabinet before performing the following operations.)

1. Remove the 9 screws retaining the front panel to the sub panel (❶).
2. Remove the screw on the panel escutcheon, and disengage the 5 claws retaining the panel escutcheon to the sub panel (❷).
3. Place the panel escutcheon on the unit (❸). At this time, place a cloth, etc., below the panel escutcheon to protect the panel escutcheon from being scratched.

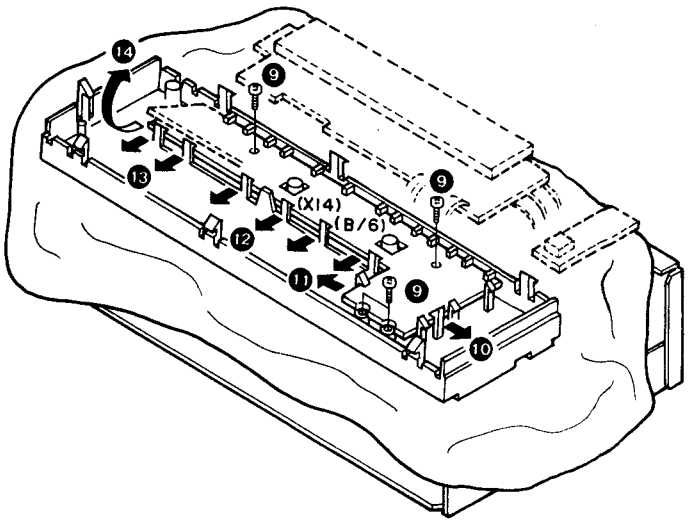


DISASSEMBLY FOR REPAIR

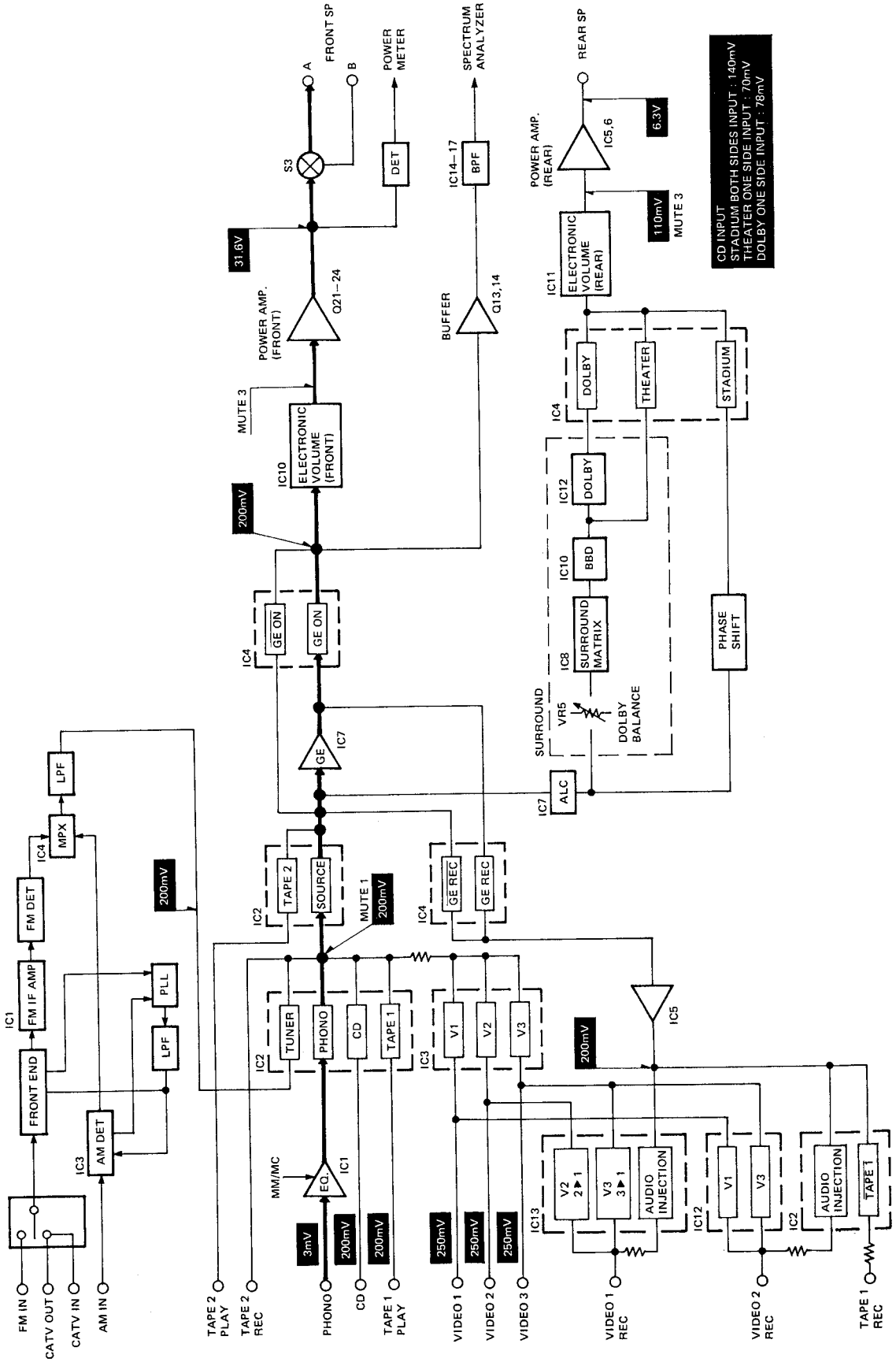
4. Disengage the 6 claws retaining the Display Unit (X14-2130-10) (C/6) to the panel escutcheon (❹).
5. Remove the 3 screws retaining the Display Unit (X14-) (A/6) to the panel escutcheon (❺).
6. Disengage the 4 claws retaining the Display Unit (X14-) (A/6) to the panel escutcheon (❻).
7. Disconnect the connector (CN1-A,B) which have been connected to the Display Unit (X14-) (A/6) and (X14-) (B/6) (❼).
8. Place the Display Unit (X14-) (A/6) in the direction of the arrow (❽).



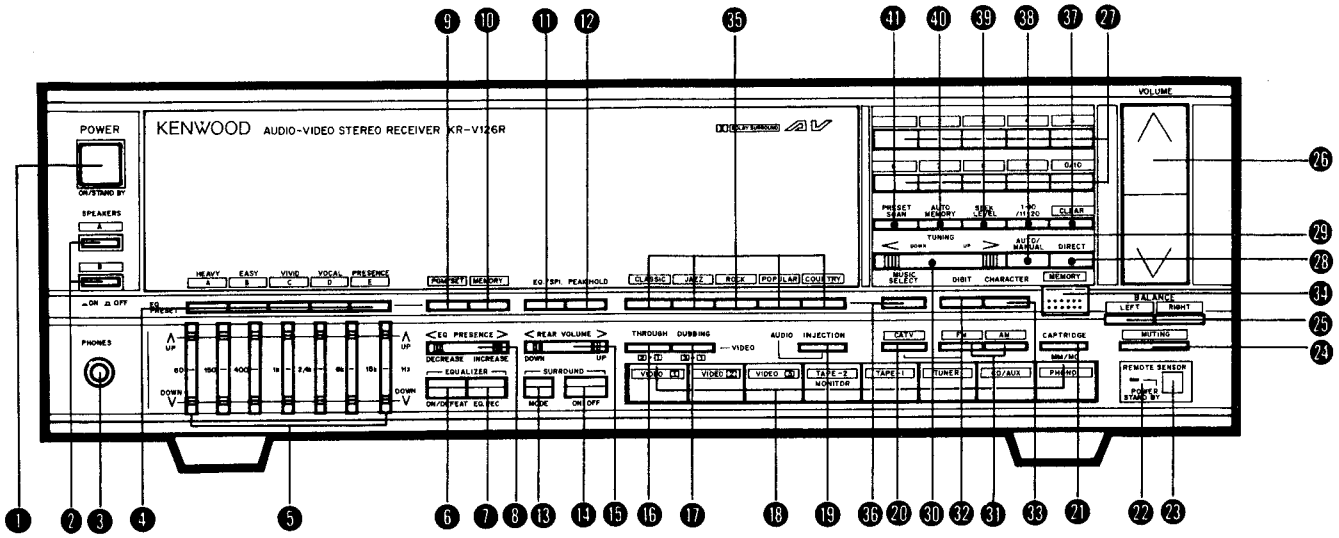
9. Remove the 4 screws retaining the Display Unit (X14-) (B/6) to the panel escutcheon (❾).
10. Disengage the 8 claws retaining the Display Unit (X14-) (B/6) to the panel escutcheon. To facilitate this procedure, disengare the claws from right (❿) to left (⓭).
11. Remove the Display Unit (X14-) (B/6) in the direction of the arrow (⓮).



BLOCK LEVEL DIAGRAM



CONTROLS AND INDICATORS



❶ POWER switch
Press this switch to turn on power. (The POWER STAND BY indicator lights.) Press it again to turn power off.

❷ SPEAKERS A and B switches
A,B OFF – This position silences all speakers to permit private use of headphones.
A ON – Activates speakers connected to the SPEAKERS A terminals on the rear panel.
B ON – Activates speakers connected to the SPEAKERS B terminals on the rear panel.
A,B ON – Activates speakers connected to the SPEAKERS A and B terminals simultaneously.

Note:
When the SPEAKERS A and B switches are used at the same time, the speakers connected to the SPEAKERS A and B terminals are connected in series. In this respect, whenever using the SPEAKERS A and B switches at the same time, be sure that two pairs of speakers are connected to the terminals A and B, otherwise no sound is output.

❸ PHONES jack
Stereo headphones are plugged into this jack.

❹ EQ (Equalizer) PRESET keys
Use these keys to store equalizer curves in memory or to recall them.
PGM: User-adjusted equalizer curves can be programmed as desired and stored in memory; up to five patterns.
SET: Five factory-preset equalizer curves are stored in memory.
Up to 10 equalizer curve memories are available in total. Press the PGM/SET key to select either the user-programmed pattern or the factory-preset pattern.

❺ Equalizer level controls
Adjust these controls up and down to equalize the sound by ±12 dB to the center frequency indicated.

❻ EQUALIZER key
Press this switch to ON and the frequency characteristic will be modified by passing through the graphic equalizer. In the DEFEAT position, the frequency characteristic remains unchanged.

❼ EQ REC key
Used when recording the source onto the tape deck through the equalized response of the graphic equalizer.

❽ EQ PRESENCE controls
Adjust these controls (INCREASE and DECREASE) to boost or attenuate the equalizer curve indicated.

❾ PGM/SET key
Pressing this key alternates the preset equalizer curves to be recalled between PGM (user-programmed patterns) and SET (factory-preset patterns) groups.

❿ Equalizer preset MEMORY key
This key is used to store an equalizer curve into the PGM PRESET memories. First, select the desired equalizer curve and then press this key. Then press any of the PRESET (A to E) keys. The selected equalizer curve will be stored in the memory indicated by the PRESET key pressed.

⓫ EQ/SPI key
Pressing this key alternates the display mode between the EQ (graphic equalizer) and SPI (spectram peak indicator-spectrum analyzer).

⓬ PEAK HOLD ON/OFF key
In the spectrum analyzer display (SPI) mode, pressing this key activate or deactivate the Peak Hold function of the power meter indicator.

CONTROLS AND INDICATORS

⑬ SURROUND MODE switch
Select the desired surround mode with this switch when the SURROUND ON/OFF switch is set to ON. Each time this switch is pressed, DOLBY, THEATER or STADIUM surround mode is selected in turn cyclical.
This becomes the recall function when the surround function is not displayed. When this key is pressed with the surround function displayed, the mode is changed.

⑭ SURROUND ON/OFF switch
Press this switch to activate or deactivate the surround output.

⑮ REAR VOLUME controls
Adjusts front/rear balancing when surround speakers are used. The control range is ±20 dB of the front speaker level.

⑯ THROUGH DUBBING [2] ▶ [1] key
This activate the through dubbing from VIDEO 2 to VIDEO 1.

⑰ THROUGH DUBBING [3] ▶ [1] key
This activate the through dubbing from VIDEO 3 to VIDEO 1.

Note:
Pressing the THROUGH DUBBING key twice will resume the previous mode.

⑱ Input selector switches
VIDEO 1 – Selects the video recorders connected to the VIDEO 1 jacks.
VIDEO 2 – Select the video recorders connected to the VIDEO 2 jacks.
VIDEO 3 – Select the video recorders connected to the VIDEO 3 jacks.
TAPE 1 – Press this switch to play back a tape deck connected to TAPE 1 jacks.
TAPE 2 – Press this switch to play back a tape deck connected to the TAPE 2 jacks. (The TAPE-2 switch is operated in priority to any other audio input systems.)
TUNER – Selects the tuner mode.
CD/AUX – Selects the source connected to the CD/AUX jacks.
PHONO – Selects the program source played on the turntable.

⑲ AUDIO INJECTION switch
Press this switch ON when replacing the sound of VIDEO 1, 2 with that of AUDIO source, or when the sound equalized by graphic equalizer is required on dubbing between VIDEO sources.

⑳ CATV ON/OFF switch
Press this switch to select FM 75Ω or CATV 75Ω antenna line.

㉑ CARTRIDGE selector switch
This switch is used to select the type of cartridge of the turntable connected.
MM – When using an MM (moving magnet) and an high output MC (moving coil) cartridge, set the switch to this position.
MC – When using an MC cartridge set the switch to this position.

㉒ REMOTE POWER STAND BY indicator
This indicator lights so far as the power cord is plugged into the AC outlet. It is lit to show that the POWER switch on the front panel or the POWER key on the remote control unit can be activated.

㉓ REMOTE SENSOR
Point the supplied remote control unit towards this sensor and operate. It blinks when the signal from the remote control unit is received.

㉔ MUTING key
When the muting key is pressed, the MUTING indicator in the display window will flash, and the overall listening sound level is reduced.
When the key is pressed again, you can restore exactly the same listening level as before.

㉕ BALANCE controls
Governs the amount of sound coming from each paired speakers to get optimum stereo effect. Pressing the RIGHT key will decrease the left channel volume and pressing the LEFT key will decrease the right channel volume. When the BALANCE controls is pressed, display window shows the BALANCE indicator.
In the KR-V126R and KR-V106R, the balance of the rear speakers are controlled at the same time.

㉖ VOLUME controls
This control adjusts the left- and right-channel volumes simultaneously. Set it for the desired listening level. Pressing the up ( ) key increases the volume and pressing the down (V) key decreases it.
In the KR-V126R and KR-V106R, the volume level of the rear speakers are controlled at the same time.

Note:
A slight noise is heard from the speakers when operating the VOLUME controls. This noise is the built-in microprocessor control signal and is not a fault.

㉗ Preset (numeric) keys
Use these keys to:
1) input directly the digits of frequencies, or
2) store and recall frequencies in the preset memory.

㉘ DIRECT key
Used to tune to the station directly. Input the desired frequency numerics with the numeric keys after pressing the DIRECT key.

CONTROLS AND INDICATORS

㉙ AUTO/MANUAL (MONO) key
When this key is pressed, the AUTO indicator will light. The frequency will automatically stop at a station in automatic tuning mode. When a stereo broadcast is received, the output sound is automatically changed to stereo.

㉚ TUNING key
Used to change the frequency. Pressing UP side will advance to the higher frequency and pressing DOWN side to the lower frequency.
In the station name input mode, this key is used to select the character.

㉛ BAND selector switches
FM - For FM broadcasts.
AM - For AM broadcasts.

㉜ DIGIT SELECT key
In the station name input mode, pressing this key advances the column after selecting the character with the Tuning UP/DOWN key. When this operation is repeated four time, the station name input mode will be released automatically.

㉝ CHARACTER MODE key
Press this key to activate the station name input mode.

㉞ MEMORY key
When the input mode is tuner mode, use this button to store new broudcast station data in the preset channel memory. By pressing the MEMORY key, setting the preset function key to 1-10 or 11-20 and by pressing one of the PRESET 10 key, the frequency being received is stored in the memory in the preset 10 key pressed.

㉟ MUSIC SELECT key
Pressing this key alternates between the Music Select mode and the Preset indicator mode.

㊱ MUSIC genre key
In the Preset indicator mode, a desired music genre can be stored into each Preset Channel memory button. In the Music select mode, this key is also used to select the music genre.

㊲ CLEAR key
Used to clear the contents stored in the preset channel memory. After recalling the preset channel to be cleared, pressing this key will clear the memorized contents.

㊳ Preset function (1-10/11-20) key
Used to select 1-10 or 11-20 setting for the preset channel key. In either FM or AM mode, 20 stations can be preset as random as each setting ("1-10" or "11-20") can contain 10 preset stations. Indicator "1-10" lights when "1-10" setting is used, and indicator "11-20" lights when "11-20" setting is used.

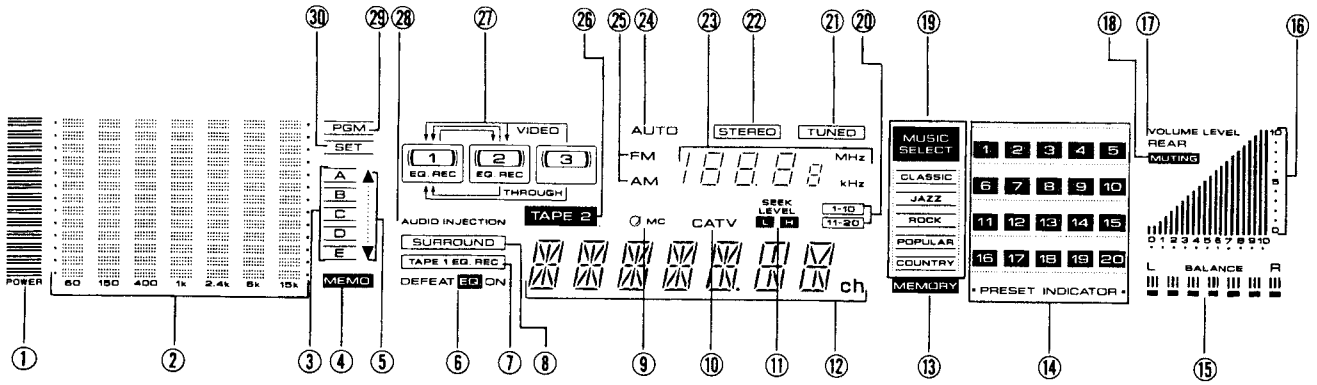
㊴ SEEK LEVEL select key (During FM reception only)
Used to select the stop level. When "L" is selected, the Auto Stop and Auto Memory functions are possible even for the weak-signal stations. When "H" is selected, the Auto Stop/Auto Memory functions are performed only for the stations having strong signal. Pressing this key alternates between "L" and "H".

㊵ AUTO MEMORY key
When this key is pressed ON, the station frequencies will be scanned and stored into the Preset Channels automatically. Scanning operation is performed from the displayed frequency to the higher range and finished after one cycle is over with the receiving band. During Auto Memory operation, the Memory indicator blinks. To release it, press the AUTO MEMORY key again.

㊶ PRESET SCAN key
Use this key for preset channel scanning.
When a frequency stored in the preset memory is being received, pressing this key shifts the reception to the next frequency stored in the preset memory. (The preset channels are scanned in the order 1, 2,..... 11, 12,..... 20,)
When frequencies other than those stored in the preset memory received, pressing this key changes the reception to the frequency in preset channel 1.
- To stop a scanning operation, press the SCAN key again.
- In MUSIC SELECT mode, a preset scanning operation is performed within the music genre selected.

CONTROLS AND INDICATORS

㊷ Display window



① Display the power level display.
② In graphic equalizer mode, displays the equalizer level display, the music spectrum analyzer display and peak hold display.
③ Displays when storing or recalling equalizer preset channel in memory.
④ This indicator lights when the Memory (EQ) key is pressed to store the desired equalizer curve.
⑤ Equalizer Presence Indicator.
⑥ Lights when the EQUALIZER switch is set to "ON". Lights when the EQUALIZER switch is set to "DEFEAT".
⑦ This indicator lights when EQ REC (equalizer recording) is engaged for Tape 1.
⑧ Lights when the SURROUND ON/OFF switch is pressed.
⑨ Lights when the MC cartridge is selected.
⑩ Lights when the CATV switch is pressed.
⑪ This displays the "L" or "H" seek level in FM mode.
⑫ This displays the input mode, preset channel, station name, front volume level, rear level balance, surround mode, EQ preset channel and music genre.
⑬ Lights when the MEMORY key is pressed. Blinks when the AUTO MEMORY key is pressed.
⑭ Displays preset music genre selected at music select mode, and all of the preset broadcast station channels which are in the Preset indicator at preset indicator mode.
⑮ Indicates the left and right volume balance.
⑯ Displays the volume level, also displays rear volume level during flashing the REAR indicator.
⑰ Flashes when the REAR LEVEL controls is pressed.
⑱ Flashes when the MUTING key is pressed.
⑲ When the Music Select key and MUSIC GENRE key are pressed, the "MUSIC SELECT" and one of the music genre indicators light.
⑳ "1-10"or "11-20" lights according to the selection of the preset function keys.
㉑ In tuner mode, lights when a station is tuned in.
㉒ In tuner mode, lights when a stereo broadcast is tuned in.
㉓ Displays the digital frequency display.
㉔ Lights during auto tuning.
㉕ Displays the tuner band "FM" or "AM".
㉖ Lights when the TAPE-2 key is pressed.
㉗ Display the VIDEO dubbing mode, VIDEO monitor out mode, EQ REC mode or through dubbing mode displays.
㉘ Lights when the AUDIO INJECTION is pressed.
㉙ Lights when the PGM/SET key is set to "PGM".
㉚ Lights when the PGM/SET key is set to "SET".

CIRCUIT DESCRIPTION

Description of components

TUNER UNIT (X05-3330-10)

Component	Use/Function	Operation/Condition/Compatibility
IC1	FM IF detector	
IC2	PLL (phase-locked loop)	
IC3	AM detector	
IC4	FM MPX	
IC5 ,6	For power amplification	Power amplifier.
IC7	For ALC amplification	Amplifier.
IC8	For amplification	Surround matrix.
IC9	Clock oscillation	Clock oscillator for BBD IC.
IC10	Delay device	BBD IC.
IC11	For amplification	Amplifier.
IC12	Dolby IC	DOLBY.
IC13	For amplification	Amplifier.
Q1	IF amplifier	
Q2, 3	PLL, Low-pass filter	
Q4	5V constant voltage, for PLL	
Q5	FM + B select	Turns ON in FM mode.
Q6	AM + B select	Turns ON in AM mode.
Q7	$\overline{\text{FM}}$ + B select	Turns ON in $\overline{\text{FM}}$ mode.
Q8	TUNED indicator, for SD	Turns OFF when tuned.
Q9	Forced mono select	Turns OFF in forced mono mode.
Q10	TUNED indicator, for SD	Turns ON when tuned.
Q11	Forced mono select	Turns ON in forced mono mode.
Q12, 13	CATV relay drive	Turns ON in CATV mode.
Q14, 15	Seek level select	Q15 is ON and Q14 is OFF when low.
Q16	Buffer for L5	
Q17	+ B ripple filter	
Q20	Microcomputer (μ-COM) power supply, for fast OFF	
Q21, 22	DOLBY, for ALC	Lowers the input according to the output level.
Q23	DOLBY, ALC, for detection	ALC output level detection.

MAIN AMPLIFIER UNIT (X07-2350-10)

Component	Use/Function	Operation/Condition/Compatibility
IC1	Protection	Relay drive.
Q1~4	Primary stage voltage amplification	
Q5~8	Primary stage cascode amplifier	
Q9~12	Secondary stage voltage amplification	
Q13~16	Third stage voltage amplification	
Q17, 18	Third stage cascode amplifier	
Q19, 20	Third stage current mirror	
Q21~24	Power amplifier driver	
Q25, 26	Protection, current detection	Positive (+) side.
Q27, 28	Protection, current detection	Negative (—) side.
Q29	Protection	Transmits the current detected signal to IC1.

CIRCUIT DESCRIPTION

AUDIO UNIT (X09-2470-10)

Component	Use/Function	Operation/Condition/Compatibility
IC1	Phono equalizer	
IC2, 3	Input selector select	
IC4	GE, GE REC ON/OFF, surround mode select	
IC5	Buffer for REC	
IC6	VR array for GE (graphic equalizer)	
IC7, 8	Op amplifier for GE (graphic equalizer)	Semiconductor L (self-reactance) x 7.
IC9	Op amplifier for surround	Stadium surround.
IC10, 11	Electronic volume	IC10 for front channel, IC11 for rear channel.
IC12	3-pin regulator	15V.
Q1, 2, 7, 8	MM/MC select	Q1 and Q2 : Input impedance select ; Q7 and Q8 : gain select.
Q3~6	PHONO input stage	Differential input section.
Q9, 10	Muting	Muting when changing the selector.
Q11		Q9 and Q10 are driven by open collector.
Q13, 14	L and R mixer for apectrum analyzer	Emitter follower.
Q15, 16	Stadium surround	Input buffer amplifier.
Q17, 18	Muting	Muting for MAIN IN section.
Q19, 20	Drive circuit for muting	
Q21, 22	Buffer for rear-channel amplifier	
Q23, 24	Muting	Muting for rear-channel amplifier.
Q25, 26	Constant voltage for −33V	
Q27	For FL ON (go on) timing	Switch for −33V, high-β (beta) transistor.
Q28		
Q29	For FL OFF (go out) on power OFF	
Q30	For −14V constant voltage	Inverted-darlington connection with Q32.
Q31	−14V constant voltage	Error amplification.
Q32	−14V constant voltage	
Q33	5V constant voltage	5V power supply for display.
Q34	5V constant voltage	5V power supply for μ-COM (microcomputer).
Q35, 36	Relay drive for surround	
Q37, 38	For main amplifier bias	
Q39~42	Main amplifier final stage	

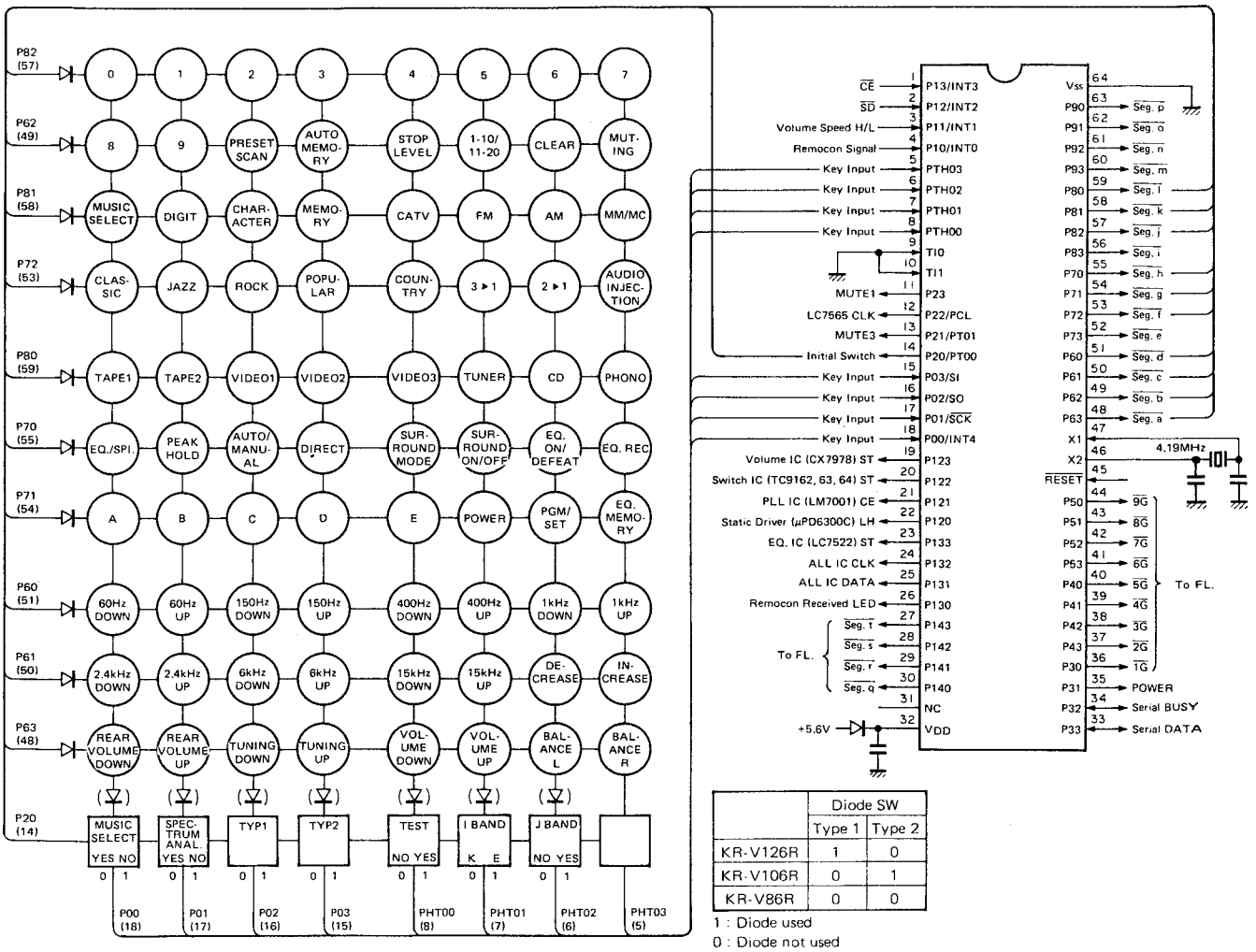
DISPLAY UNIT (X14-2130-10)

Component	Use/Function	Operation/Condition/Compatibility
IC1	Microcomputer	
IC2~5	Transistor array (for FL drive)	Active low.
IC6	Static driver (for FL drive)	
IC7	GE, SP display IC	
IC8, 9	Transistor array (for FL drive)	Active high.
IC10, 11	Logic IC	Data mute circuit.
IC12, 13	Analog switch IC	Video select.
IC14~17 (2/2)	Spectrum analyzer band-pass filter	
IC17 (1/2)	Spectrum analyzer band-pass filter	Input amplifier.
Q1~4	Digital transistor (for FL drive)	
Q7	For through-dubbing control	Turns OFF when a through-dubbing operation is activated in VIDEO 2 and VIDEO 3 mode.
Q8~10	Video output buffer	
Q11	Data mute circuit	
Q12, 13	Realy drive	
Q14	Microcomputer reset circuit	Turns ON for several milli-seconds, when power is turned ON.

CIRCUIT DESCRIPTION

Microprocessor : μPD75108CW-041 (X14-2130-10 : IC1)

Terminal connection



	Diode SW	
	Type 1	Type 2
KR-V126R	1	0
KR-V106R	0	1
KR-V86R	0	0

1 : Diode used
0 : Diode not used

• Volume IC CX7978

CLK (9), DATA (10), ST (11)

	CS1 (4)	CS2 (5)	M/S (6)
FRONT	Vss	Vss	OPEN or VDL
REAR	OPEN or VDL	OPEN or VDL	OPEN or VDL

The ST signal to the IC is input by differentiating the signal from the microcomputer.

• PLL IC LM7001

CLK (2), DATA (4), ST (3)

	AO	BO
FM	1	0
AM	0	1
Except TUNER	0	0

• Switch IC CLK (15), DATA (16), ST (13)

	S1	S2	S3	S4	S5	S6	S7	S8
TC9162N	$\overline{\text{EQ REC}}$	EQ REC	$\overline{\text{EQ ON}}$	EQ ON	DOLBY	THEATER	STADIUM	–
TC9163N	VIDEO 2 2→1 (V1 REC)	VIDEO 3 3→1 (V1 REC)	AUDIO INJECTION 1 (V1 REC)	VIDEO 1	VIDEO 2	VIDEO 3	VIDEO 1 (V2 REC)	VIDEO 3 (V2 REC)
TC9164N	TAPE 1	CD/AUX	PHONO	TUNER	$\overline{\text{TAPE 2 PLAY}}$	TAPE 2 PLAY	AUDIO INJECTION 2 (V2 REC)	$\overline{\text{TAPE 1}}$

The ST signal to the IC is input differentiating the signal from the microcomputer.

• Static Driver IC μPD6300C CLK (12), DATA (11), LH (10)

Output	O0 (15)	O1 (16)	O2 (17)	O3 (18)	O4 (19)	O5 (20)	O6 (21)	O7 (22)	O8 (23)	O9 (24)
Dispaly	⊡	⊙ MC	FM	AM	AUTO	CATV	SEEK LEVEL	(2)	1 EQ REC	⊥
Terminal	PD7	PD3	PD6	PD5	PD4	PD2	PD1	PC11	PC9	PC6
Output	O10 (25)	O11 (26)	O12 (27)	O13 (1)	O14 (2)	O15 (3)	O16 (4)	O17 (5)	O18 (6)	O19 (7)
Dispaly	AUDIO INJECTION	TAPE 1 EQ REC	⋮	⋮	EQ ON	SURROUND	TAPE 2	⊥	(3)	(1)
Terminal	PC4	PC2	PB2	PB1	PC1	PC3	PC5	PC7	PC10	PC12

• Equalizer IC LC7522 S (13) : VEE, CLK (17), DATA (16)

• EQ./SPI dispaly IC LC7565 S1 (15), S2 (16) : VDD, CLK (18), DATA (17)

CIRCUIT DESCRIPTION

Terminal functions

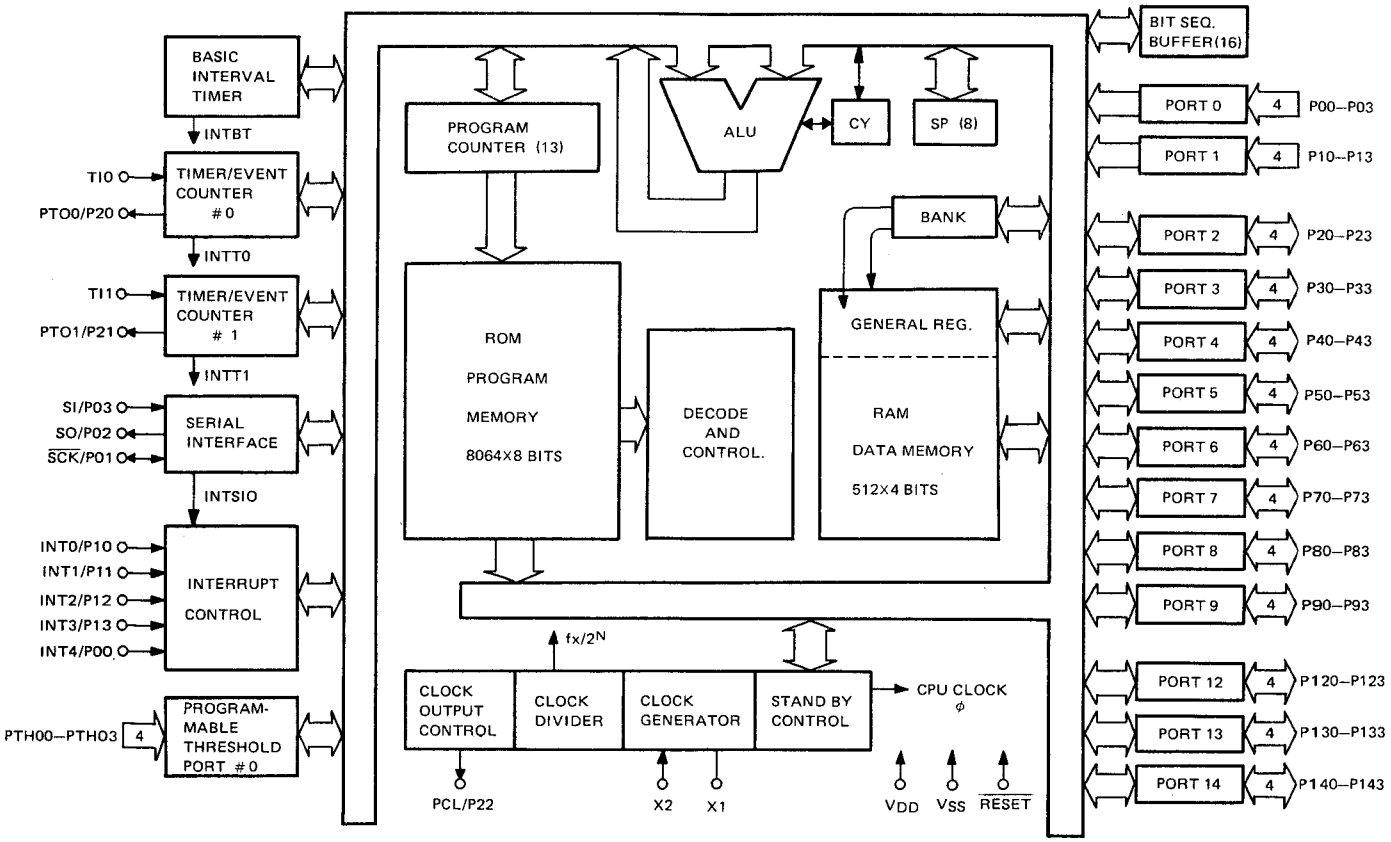
Pin No.	Pin name	I/O	Name	Description
1	P13/INT3	I	$\overline{CE}$	Backup detection pin. When this goes low level, backup mode is set and the clock stops.
2	P12/INT2	I	$\overline{SD}$	Station presence/absence detection signal input pin: Used in Auto Tuning, Auto Memory, and Preset Scan. High : station is not present, Low : Station is present.
3	P11/INT1	I	Volume Speed	Volume data output inhibition time setting port : Used when electronic volume CX7978 malfunctions at low temperature. High : 400ms, Low : 96ms. * This is used when low in the KR-V126R.
4	P10/INT0	I	Remocon Signal	Remote control signal input pin after detection : Inputs the remote control signal level in normal mode and when reading out the leader code. Detects the signal by interruption the rising edge when reading the data.
5~8	PTH03~ PTH00	I	Key Input	Key matrix return signal input pin : Normally high. (Threshold voltage = VDD x 7.5/16, Conversion time : 32.3μs).
9 10	TI0 TI1	I	Not used	No-connection input pin. Fixed at VDD or Vss.
11	P23	O (CMOS)	MUTE1	Muting signal output pin : Used when the Input Selector is changed, during tuning scan, etc. Normally low, Active high.
12	P22/PCL	O (CMOS)	LC7565 CLK	Output pin to be connected to the CLK pin of LC7565. Normally low.
13	P21/PTO1	O (CMOS)	MUTE3	• With the volume level of the front channel set to between 0 and −28dB, outputs the muting signal for a short period (about 10msec.) when the TAPE2 ON/OFF, EQ ON/OFF, EQ REC ON/OFF, surround ON/OFF or surround mode selector is switched. • When the volume level of the front channel is set to − ∞ dB, outputs the muting signal.
14	P20/PTO0	O (CMOS)	Initial SW	Strobe signal for taking in the initial switch. Momentarily low immediately after reset, otherwise always high.
15~18	P03/SI~ P00/INT4	I	Key Input	Key matrix returns signal input pin : Normally high.
19	P123	O (N ch open drain)	Volume IC (CX7978)ST	• ST signal output pin for the electronic volume IC (CX7978) . • Normally high, and low when data is output. • The microprocessor signal is input to the ST pin of CX7978 after differentiating.
20	P122	O (N ch open drain)	Switch IC (TC9162N, 9163N, 9164N)ST	• ST signal output pin for the switch ICs (TC9162N, TC9163N. amd TC9164N) . • Normally high, and low when data is output. • The microprocessor signal is input to the ST pin after differentiating.
21	P121	O (N ch open drain)	PLL IC (LM7001)CE	• CE signal output pin for the PLL IC (LM7001) . • Normally low, and high when data is output.
22	P120	O (N ch open drain)	Static Driver (μPD6300C)LH	• LH signal output pin for the Static Driver IC (μPD6300C) . • Normally low, and high when data is output.
23	P133	O (N ch open drain)	EQ IC (LC7522)ST	• The signal pin used to mute the CLK and DATA signals to the other ICs, so that the signal is not input to the CLK and DATA pins of LC7522. • Normally high, and low when data is output.
24	P132	O (N ch open drain)	CLK	• CLK signal output pin for CX7978, TC9162N, TC9163N, TC9164N, LM7001, and LC7522.
25	P131	O (N ch open drain)	DATA	• DATA signal output pin for CX7978, TC9162N, TC9163N, TC9164N, LM7001, LC7522, and LC7565.
26	P130	O (N ch open drain)	Remocon Received LED	Directly drives the remote control STANDBY/RECEIVED LED. It blinks while the remote control signal is being received, and is lit otherwise.

CIRCUIT DESCRIPTION

Pin No.	Pin name	I/O	Name	Description
27 28 29 30	P143 P142 P141 P140	O (N ch open drain)	$\overline{\text{Seg t}}$ $\overline{\text{Seg s}}$ $\overline{\text{Seg r}}$ $\overline{\text{Seg q}}$	• FL segment control pin. • Negative logic. • Drives the FL display through an inversion buffer.
31	NC			
32	V_{DD}			Power supply pin.
33	P33	I/O (CMOS)	Serial DATA	• DATA pin for system serial communication . • Normally in input mode, and in output mode only when serial data is output.
34	P32	I/O (CMOS)	Serial BUSY	• BUSY pin for system serial communication . • Normally in input mode. Outputs a high level signal when serial data is output. Also provides the serial bus control function.
35	P31	O (CMOS)	POWER	Output pin for the power relay control : Active high. This is controlled by the POWER key. It alternates between high (Power ON) and low (Power OFF) each time the POWER key is pressed.
36 37 38 39 40 41 42 43 44	P30 P43 P42 P41 P40 P53 P52 P51 P50	O (CMOS)	$\overline{\text{1G}}$ $\overline{\text{2G}}$ $\overline{\text{3G}}$ $\overline{\text{4G}}$ $\overline{\text{5G}}$ $\overline{\text{6G}}$ $\overline{\text{7G}}$ $\overline{\text{8G}}$ $\overline{\text{9G}}$	• FL digit control pin. • Negaitve logic. • Drives the FL display through an inversion buffer.
45	$\overline{\text{RESET}}$	I		Input pin for the reset signal from the microcomputer .
46 47	X2 X1			• System clock oscillator pin (4.194MHz) .
48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63	P63 P62 P61 P60 P73 P72 P71 P70 P83 P82 P81 P80 P93 P92 P91 P90	O (CMOS)	$\overline{\text{Seg a}}$, Key $\overline{\text{Seg b}}$, Key $\overline{\text{Seg c}}$, Key $\overline{\text{Seg d}}$, Key $\overline{\text{Seg e}}$ $\overline{\text{Seg f}}$, Key $\overline{\text{Seg g}}$, Key $\overline{\text{Seg k}}$, Key $\overline{\text{Seg i}}$ $\overline{\text{Seg j}}$, Key $\overline{\text{Seg k}}$, Key $\overline{\text{Seg l}}$, Key $\overline{\text{Seg m}}$ $\overline{\text{Seg n}}$ $\overline{\text{Seg o}}$ $\overline{\text{Seg p}}$	• FL segment control pin . • Negative logic. • Drives the FL display through an inversion buffer. • Key intake strobe signal output pin.
64	Vss			GND pin.

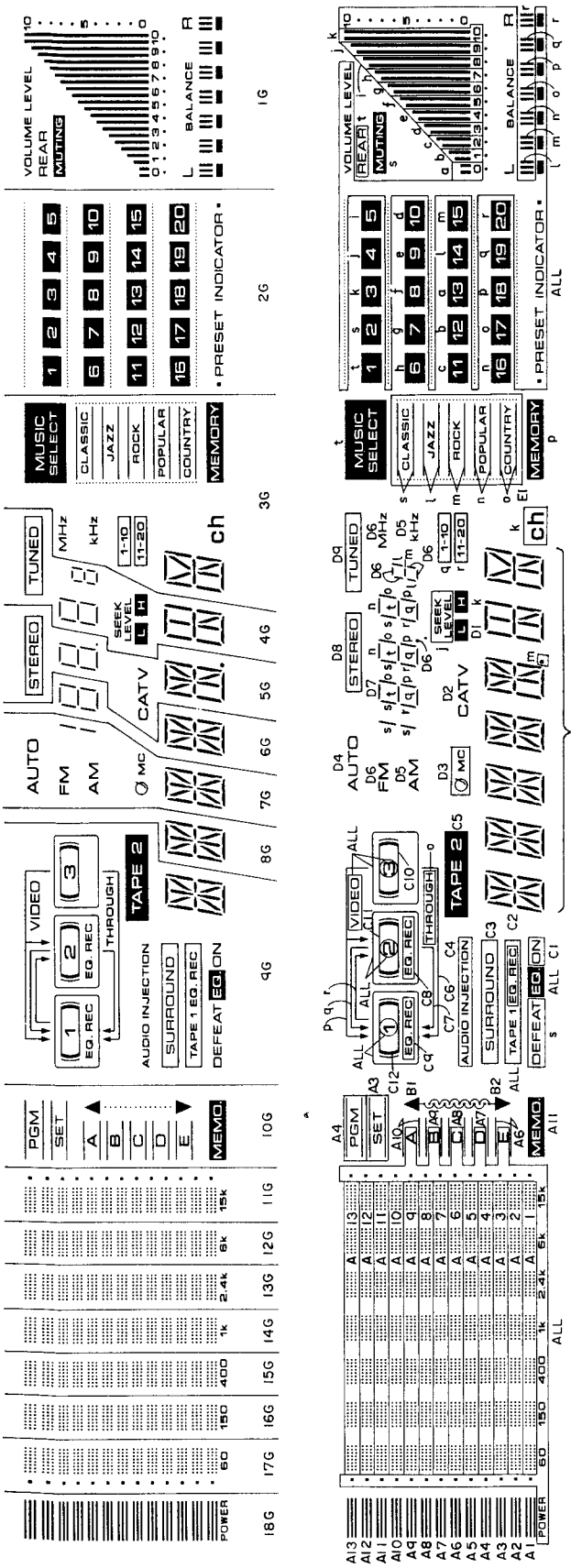
CIRCUIT DESCRIPTION

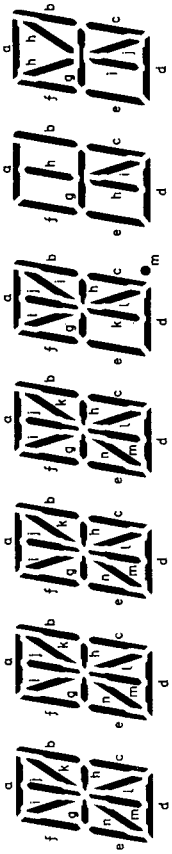
Block diagram



CIRCUIT DESCRIPTION

Indicator tube : FIP20AMW30 (X14-2130-10 : FL1)





Terminal No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Electrode	F	F	F	P(A1)	P(A2)	18G	P(A3)	P(A5)	17G	P(A6)	P(A7)	16G	P(A8)	P(A9)	15G	P(A10)	14G	P(A11)	P(A12)	13G
Terminal No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Electrode	P(A13)	12G	P(ALL)	P(A4)	11G	P(B1)	P(B2)	P(C1)	10G	P(s)	P(C2)	IC	9G	P(C3)	P(C4)	P(C5)	P(C6)	P(C7)	P(C8)	9G
Terminal No.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Electrode	P(C9)	P(C10)	P(C11)	P(C12)	P(D1)	9G	P(D2)	8G	P(D4)	P(D5)	7G	P(D6)	P(D3)	6G	5G	P(D7)	P(D8)	P(t)	5G	P(D9)
Terminal No.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Electrode	4G	P(m)	P(l)	P(r)	4G	P(q)	P(p)	3G	P(o)	P(n)	P(m)	3G	2G	P(l)	P(E1)	P(t)	P(k)	P(j)	2G	P(i)
Terminal No.	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	
Electrode	P(k)	P(h)	P(g)	2G	P(f)	1G	P(g)	P(n)	P(i)	P(m)	P(e)	P(d)	P(c)	1G	P(b)	p(a)	F	F	F	

Notes F : Filament P : Anode
G : Grid IC : Internally Connected Pin

Since the segments "t", "m", "l", "n", "g", and "k" are not connected inside the FL display, they must be connected externally (on the PC Board).

CIRCUIT DESCRIPTION

Test mode

(1) Setup and release of test mode

Setup : Apply test mode diode and reset the microprocessor. In actual sets, short-circuit the test mode set pins.

Release : Without the test mode diode, reset the microprocessor. In actual sets, open the test mode set pins.

(2) Contents of test mode

- **Volume Up/Down operation**
  The operation attenuation level can be set at 3 points; 0dB, −28dB, and −∞dB.
- **Rear volume Up/Down operation**
  The operation level can be set at 3 points; −20dB, 0dB, and + 20dB.
- **Balance operation**
  Operation mode can be set at 3 points; L, center, and R.
- **EQ (Equalizer) Up/Down operation**
  The operation level can be set at 3 points; + 12dB, 0dB, and −12dB for each frequency band.

- **Setting of the tuner adjustment frequency**

Preset channel	Contents		Preset channel	Contents	
	K type	E type		K type	E type
1	FM 87.5MHz	FM 87.5MHz	11	AM 530kHz	AM 531kHz
2	FM 89.1MHz	FM 89.1MHz	12	AM 630kHz	AM 630kHz
3	FM 90.0MHz	FM 90.0MHz	13	AM 990kHz	AM 990kHz
4	FM 92.0MHz	FM 92.0MHz	14	AM 1440kHz	AM 1440kHz
5	FM 94.0MHz	FM 94.0MHz	15	AM 1610kHz	AM 1602kHz
6	FM 98.0MHz	FM 98.0MHz	16	–	–
7	FM 100.1MHz	FM 100.1MHz	17	–	–
8	FM 102.0MHz	FM 102.0MHz	18	–	–
9	FM 106.0MHz	FM 106.0MHz	19	–	–
10	FM 108.0MHz	FM 108.0MHz	20	–	–

Initialization

(1) Amplifier section

- AUDIO SELECTOR : TUNER
- TAPE 2 : OFF
- VIDEO SELECTOR : VIDEO 1
- Volume : −56dB
- Rear volume : 0dB
- Balance : center position
- MM/MC selector : MM
- AUDIO INJECTION : OFF
- Through dubbing : OFF
- SURROUND selector : OFF (DOLBY is selected when turned ON)

(2) Graphic Equalizer (EQ) section

- EQ memory mode : PGM
- EQ memory channel : Last memory setting (not preset channel)
- EQ status : ±0dB, FLAT
- Contents of EQ program memory : ±0dB, FLAT for all channels
- When SET mode is activated, "A" is recalled.
- INC/DEC : None
- EQ : OFF
- EQ REC : OFF

(3) Tuner section

- Receiving frequency : FM lower limit
- AUTO mode
- SEEK LEVEL : High
- CATV : OFF
- Preset function : 1 to 10
- MUSIC SELECT : OFF
- Preset memory : All clear

CIRCUIT DESCRIPTION

Selector tuner

Key operation / Status	Amplifier section												Tuner							
	POWER	Each selector	AUDIO INJECTION	2→1	3→1	SURROUND ON/OFF	SURROUND MODE	MM/MC	VOL UP/DOWN	R. VOL UP/DOWN	BALANCE L/R	MUTING	Frequency UP/DOWN	10 KEY	DIRECT	BAND FM	BAND AM	AUTO	P. SCAN	AUTO MEMORY
Immediately after POWER ON SELECTOR : TUNER VIDEO 1 BAND : FM	POWER : OFF	Changes each SELECTOR	AUDIO INJECTION : ON	Dubbing 2→1 mode is activated AUDIO INJECTION : OFF	Dubbing 3→1 mode is activated AUDIO INJECTION : OFF	SURROUND : ON	ON : DOLBY ↓ THEATER ↓ STADIUM	PHONO : MC	Front volume UP/DOWN	Rear volume UP/DOWN	Balance L/R	−20dB MUTING	Frequency UP/DOWN 1) MUSIC SELECTOR : OFF 2) Preset : Last area "TUNER—2"	Recalls preset corresponding to the numeric keypad	Enables direct tuning	Changes the band to FM	Changes the band to AM	AUTO/ MANUAL	Preset Scan Start/Stop	Auto Memory Start/Stop 1) Sets Auto mode 2) MUSIC SELECTOR : OFF
During frequency UP/DOWN (AUTO mode)	↑	↑	↑	↑	↑	↑	↑	—	↑	↑	↑	↑	↑ (UP – DOWN)	↑	—	↑	↑	↑ (Stop in MANUAL)	↑ (Scanning starts from the lower channel)	—
During direct frequency input	↑	↑	↑	↑	↑	—	—	—	↑	↑	↑	↑	↑	(Input with numeric keypad)	Ends direct input (Displays SEL.)	↑	↑	↑	↑	—
During preset scan	↑	↑	↑	↑	↑	—	—	—	↑	↑	↑	↑	↑	↑ (Recall)	—	↑	↑	↑	↑ (STOP)	—
During auto memory	↑	↑	↑	↑	↑	—	—	—	↑	↑	↑	↑	—	↑	—	↑	↑	—	—	↑ (STOP)
While accepting character input	↑	↑	↑	↑	↑	—	—	—	↑	↑	↑	↑	(Character select)	↑	—	↑	↑	↑	↑	—
While displaying a direct frequency input error	↑	↑	↑	↑	↑	↑	↑	—	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
During memory write enable mode	↑	↑	↑	↑	↑	—	—	—	↑	↑	↑	↑	↑	↑ (Write)	↑	↑	↑	↑	↑	↑
While displaying surround mode	↑	↑	↑	↑	↑	↑	↑	—	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
While displaying volume attenuation level	↑	↑	↑	↑	↑	↑	↑	—	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
While displaying rear volume attenuation level	↑	↑	↑	↑	↑	↑	↑	—	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
While dispalying EQ. (graphic equalizer) preset	↑	↑	↑	↑	↑	↑	↑	—	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
When a source other than "TUNER" is selected	↑	↑	↑	↑	↑	↑	↑	↑ (SEL. PHONO)	↑	↑	↑	↑	—	↑	—	↑	↑	—	—	—

CIRCUIT DESCRIPTION

				Tuner section															
VOL UP/DOWN	R. VOL UP/DOWN	BALANCE L/R	MUTING	Frequency UP/DOWN	10 KEY	DIRECT	BAND FM	BAND AM	AUTO	P. SCAN	AUTO MEMORY	SEEK LEVEL	CHARACTER	DIGIT	GENRE KEY (5)	MUSIC SELECT	MEMORY	CLEAR	CATV ON/OFF	+ 10
ont volume UP/DOWN	Rear volume UP/DOWN	Balance L/R	−20dB MUTING	Frequency UP/DOWN 1) MUSIC SELECTOR : OFF 2) Preset : Last area "TUNER−−2"	Recalls preset corresponding to the numeric keypad	Enables direct tuning	Changes the band to FM	Changes the band to AM	AUTO/ MANUAL	Preset Scan Start/Stop	Auto Memory Start/Stop 1) Sets Auto mode 2) MUSIC SELECTOR : OFF	HIGH/LOW (in FM mode)	Enables character input 1) Preset : Last area	Advances the column for inputting a character	1) Music Select : OFF, Changes the genre Preset : Last area 2) Music Select : ON, Recalls the genre	Mode select ON/OFF	Enables memory write	Clears the preset information in the memory area 1) Preset : Last area "TUNER −−2"	Antenna select CATV/OFF (Activated in FM mode) 1) Preset : Last area 2) Muting is engaged	Preset area select : 1-10/11-20
↑	↑	↑	↑	↑ (UP − DOWN)	↑	—	↑	↑	↑ (Stop in MANUAL)	↑ (Scanning starts from the lower channel)	—	↑	—	—	—	—	—	—	—	↑
↑	↑	↑	↑	↑	(Input with numeric keypad)	Ends direct input (Displays SEL.)	↑	↑	↑	↑	—	↑	—	—	—	—	—	—	—	↑
↑	↑	↑	↑	↑	↑ (Recall)	—	↑	↑	↑	↑ (STOP)	—	↑	—	—	—	—	—	—	—	↑
↑	↑	↑	↑	—	↑	—	↑	↑	—	—	↑ (STOP)	↑	—	—	—	—	—	—	—	↑
↑	↑	↑	↑	(Character select)	↑	—	↑	↑	↑	↑	—	↑	(Releases the mode)	↑	—	—	—	—	—	↑
↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	—	↑	↑	—	—	↑	↑
↑	↑	↑	↑	↑	↑ (Write)	↑	↑	↑	↑	↑	↑	↑	↑	—	—	—	↑	—	—	↑
↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	—	↑	↑	↑	—	—	↑
↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	—	↑	↑	↑	—	↑	↑
↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	—	↑	↑	↑	—	↑	↑
↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	—	↑	↑	↑	—	↑	↑
↑	↑	↑	↑	—	↑	—	↑	↑	—	—	—	—	—	—	—	—	—	—	—	↑

ADJUSTMENT

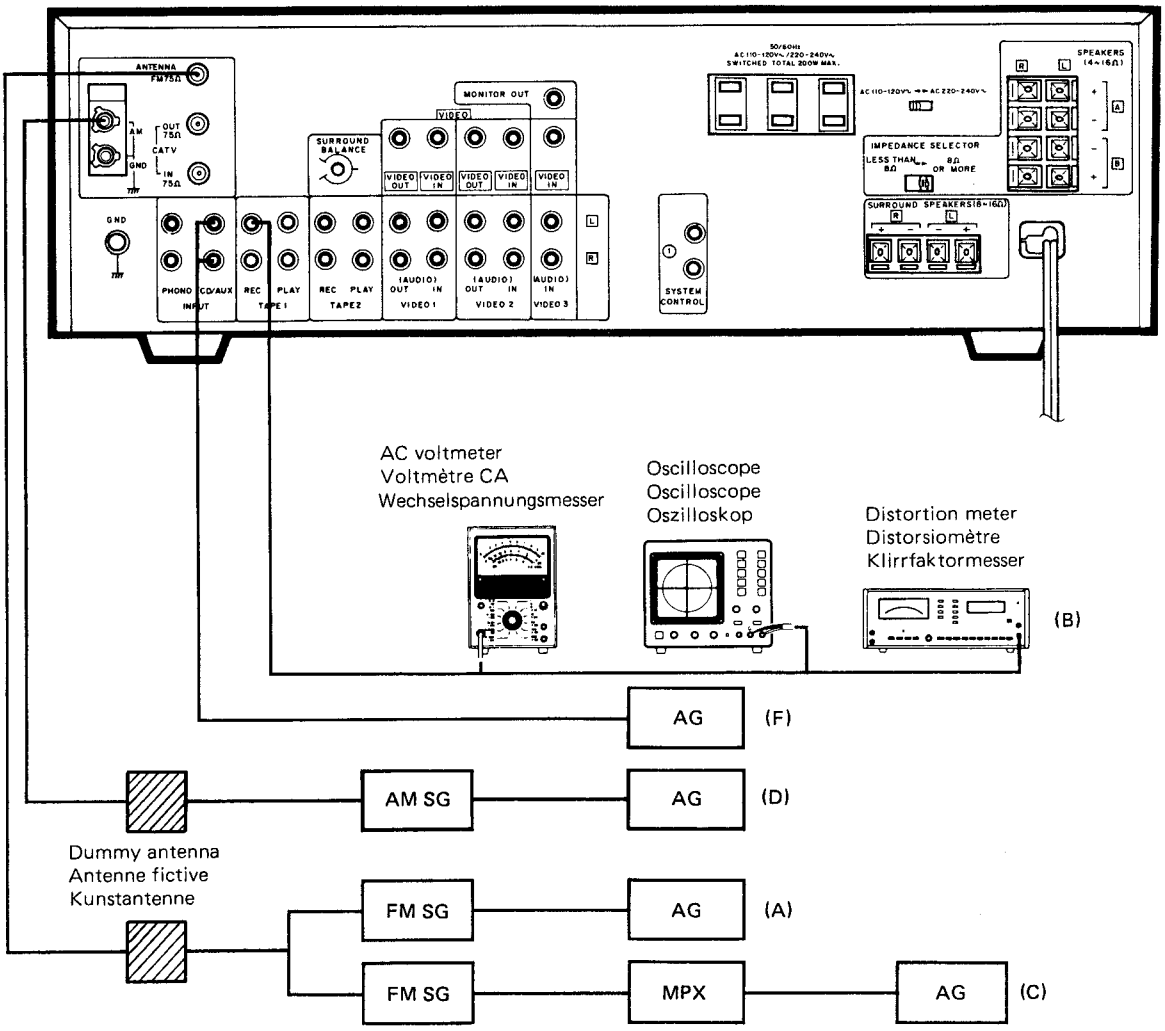
No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	RECEIVER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
FM SECTION		INPUT SELECTOR: FM MODE: STEREO					
1	DISCRIMINATOR (1)	(A) 98.0MHz 1kHz, ±75kHz dev 60dBμ(ANT input)	Connect a DC voltmeter between TP4 and 5.	MONO 98.0MHz	L2 (X05-)	0V	(a)
2	DISCRIMINATOR (2)	(A) 98.0MHz 1kHz, ±75kHz dev 60dBμ(ANT input)	(B)	MONO 98.0MHz	L3 (X05-)	Minimum distortion.	
Repeat alignments 1 and 2 several times.							
3	DISTORTION (STEREO)	(C) 98.0MHz 1kHz, ±68.25kHz dev Selector:L or R Pilot: ±6.75kHz dev 60dBμ(ANT input)	(B)	98.0MHz	IFT (Front end)	Minimum distortion.	
4	SEPARATION	(C) 98.0MHz 1kHz, ±68.25kHz dev Selector:L or R Pilot: ±6.75kHz dev 60dBμ(ANT input)	(B)	98.0MHz	VR2 (X05-)	Minimum crosstalk. A compromise adjustment may be required if left-to-right and right-to-left separations are unequal.	
5	TUNING LEVEL	(A) 98.0MHz 0 dev 13dBμ(ANT input)	–	AUTO or MONO 98.0MHz	VR1 (X05-)	Adjust VR1 and stop at the point where FL1(TUNED) goes on.	
AM SECTION		Keep the loop antenna installed.		INPUT SELECTOR:AM			
(1)	BAND EDGE (1)	–	Connect a DC voltmeter to TP3.	530kHz (531kHz)	L9 (X05-)	1.5V	(b)
(2)	BAND EDGE (2)	–	Connect a DC voltmeter to TP3.	1610kHz (1602kHz)	TC2 (X05-)	8.0V	(b)
Repeat alignments (1) and (2) several times.							
(3)	RF ALIGNMENT (1)	(D) 600(603)kHz 400Hz, 30% mod	(B)	600kHz (603kHz)	L8 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
(4)	RF ALIGNMENT (2)	(D) 1400(1404)kHz 400Hz, 30% mod	(B)	1400kHz (1404kHz)	TC1 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
Repeat alignments (3) and (4) several times.							
(5)	IF TRANSFORMER	(D) 1000(999)kHz 400Hz, 30% mod	(B)	1000kHz (999kHz)	L10 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
AUDIO SECTION							
[1]	IDLE CURRENT	–	(E) Connect a DC voltmeter across CP1(L) CP2(R)	Main volume: 0	VR1(L) VR2(R) (X07-)	10mV	(c)
[2]	DOLBY SURROUND CENTER ADJUSTMENT	(F) Connect an AG(1kHz) to CD/AUX jack(L or R).	Connect an oscilloscope between TP15 and GND.	Main volume:0 Increase the input level until the waveform clips.	VR3 (X05-)	Adjust so that the upper and lower waveform clips becomes symmetrical.	(d)
[3]	DOLBY SURROUND CLOCK LEAKAGE ADJUSTMENT	(F) Cut off the input signal level.	Connect an oscilloscope between TP15 and GND.	–	VR4 (X05-)	Adjust so that the height of the clock frequency(several 10kHz) becomes minimum.	(d)
Perform adjustment [3] after completion of adjustment [2].							
[4]	SPECTRUM ANALYZER SENSITIVITY ADJUSTMENT	(F) Connect an AG(12mV,1kHz) to CD/AUX jack(L & R).	–	–	VR1 (X14-)	To the position so that the lowest level of the spectrum analyzer lights.	

REGLAGE

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU AMPLI-TUNER	POINT DE L'ALIGNEMENT	ALIGNER POUR	FIG.
SECTION MF		Sauf en cas d'indications spéciales, régler chaque commutateur comme suit: SELECTEUR DES ENTRESS: MF MODE: STEREO					
1	DISCRIMINATEUR (1)	(A) 98.0MHz 1kHz. ±75kHz dév 60dBμ(Entrée ANT)	Relier un voltmètre CC entre les TP4 et TP5.	MONO 98.0MHz	L2 (X05-)	0V	(a)
2	DISCRIMINATEUR (2)	(A) 98.0MHz 1kHz. ±75kHz dév 60dBμ(Entrée ANT)	(B)	MONO 98.0MHz	L3 (X05-)	Distorsion minimale.	
Répéter les points 1 et 2 plusieurs fois.							
3	DISTORSION (STEREO)	(C) 98.0MHz 1kHz. ±68.25kHz dév Selection:L ou R Signal pilote: ±6.75kHz dév 60dBμ(Entrée ANT)	(B)	98.0MHz	Tête H.F. IFT (X05-)	Distorsion minimale.	
4	SEPARATION	(C) 98.0MHz 1kHz. ±68.25kHz dév Selection:L ou R Signal pilote: ±6.75kHz dév 60dBμ(Entrée ANT)	(B)	98.0MHz	VR2 (X05-)	Diaphonie minimale. Un compromis de réglage peut être nécessaire si les séparation de gauche à droite et droite à gauche sont inéglage.	
5	NINEAU D'ACCORDER	(A) 98.0MHz 0 dév 13dBμ(Entrée ANT)	–	AUTO ou MONO 98.0MHz	VR1 (X05-)	Ajuster VR1 et arrêter le mouvement de VR1 au moment où le FL1(TUNED)s'allume.	
SECTION MA		Laisser l'antenne bouche MA installée. SELECTEUR: AM					
(1)	BORD DE BANDE (1)	–	Relier un voltmètre CC au TP3.	530kHz (531kHz)	L9 (X05-)	1,5V	(b)
(2)	BORD DE BANDE (2)	–	Relier un voltmètre CC au TP3.	1610kHz (1602kHz)	TC2 (X05-)	8,0V	(b)
Répéter les points (1) et (2) plusieurs fois.							
(3)	ALIGNEMENT H.T. (1)	(D) 600(603)kHz 400Hz.30% mod	(B)	600kHz (603kHz)	L8 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
(4)	ALIGNEMENT H.T. (2)	(D) 1400(1404)kHz 400Hz.30% mod	(B)	1400kHz (1404kHz)	TC1 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
Répéter les points (3) et (4) plusieurs fois.							
(5)	TRANSFORMATEUR F.I.	(D) 1000(999)kHz 400Hz.30% mod	(B)	1000kHz (999kHz)	L10 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
SECTION AUDIO							
[1]	COURANA DE POLARISATION	–	(E) Connecter un voltmètre CC CP1(CP2)	Volume principal: 0	VR1 (G) VR2 (D) (X07-)	10mV	(c)
[2]	AJUSTEMENT CENTRAL DE L'ENVIRONNEMENT DOLBY	(F) Relier un AG(1kHz) au CD/AUX prise (L ou R).	Relier un oscilloscope entre les TP15 et GND.	Volume principal: 0 Augmenter le niveau d'entrée jusqu'à ce que la forme d'onde s'écrête.	VR3 (X05-)	Ajuster pour que les écrêtements des formes d'onde supérieure et inférieure soient symétriques.	(d)
[3]	AJUSTEMENT DE FUITE DE L'HORLOGE DE L'ENVIRONNEMENT DOLBY	(F) Couper le niveau de signal d'entrée.	Relier un oscilloscope entre les TP15 et GND.	–	VR4 (X05-)	Ajuster pour que la hauteur de la fréquence de l'horloge (plusieurs dizaines de kHz) devienne minimum.	(d)
Effectuer l'ajustement [3] après avoir terminé l'ajustement[2].							
[4]	AJUSTMENT DE LA SENSIBILITE DE L'ANALYSEUR DE SPECTRE	(F) Relier un AG (12mV, 1kHz) au CD/AUX prise (L et R).	–	–	VR1 (X14-)	Sur la position où le niveau le plus bas de l'analyseur de spectre s'allume.	

ADJUSTMENT/REGLAGE/ABGLEICH

System connections/Raccordements du système/System-Anschlusse



VLOTAGE CHECK TABLE

X05-333X-XX

IC1

1~3	3.0V	12	4.6V
4, 5	0V	13	1.3V
6	6.1V	14	0V
7~10	6.2V	15	0.42V
11	13.4V	16	0.47V

IC2

1	1.0V	11	2.7V
2	1.5V	12,13	5.0V
6, 7	0V	14	0V
8	14.0V	15	1.1V
9	0.12V	16	0V
10	0V		

IC3

1	0.1V	11	0.7V
2	0.5V	12	0V
3	0.9V	13	2.0V
4	0V	14	12.4V
5	1.4V	15	1.6V
6	1.1V	16	0V
7, 8	1.4V	17	3.8V
9	2.7V	18, 19	1.3V
10	10.2V	20	0V

X07-2350-10

IC1

6	0.7V

	B	C	E
Q3, 4	−2.0V	–	–
Q15, 16	–	1.1V	–
Q19, 20	–	−1.1V	–
Q21, 22	–	54V	0.6V
Q23, 24	–	−5.4V	−0.6V
Q25~28	–	–	0V
Q29	–	–	54V

X09-2470-10

IC1

2, 3	11.6V	5, 6	11.6V

IC2~4

1	−13.2V	28	5V

IC5

1~3	0.03V	5~7	0.03V
4	−13.2V	8	15V

IC6

1	6.8V	15	5V
11~14	−6.8V		

IC7, 8

18	15V	20	−13.2V

IC4

1~4	3.2V	14	4.9V
5	3.1V	15	0V
6, 7	3.2V	16	1.5V
8	3.1V	17	2.8V
9	3.2V	18	2.6V
10	0V	19, 20	2.7V
11	0.4V	21	3.4V
12	0V	22	13.5V
13	4.7V		

IC5, 6

1, 2	0V	4	0V
3	−13.5V	5	13.5V

IC9

1	5.4V	5	−0.9V
2	0.5V	6, 7	−0.5V
3	−6.6V	8	−5.8V
4	−0.5V		

IC10

1	6.7V	6	−0.5V
2	−0.5V	7	0V
3, 4	−0.2V	8	−5.8V
5	−6.6V		

IC9

1~3	−2.4V	5~7	−2.4V
4	−13.2V	18	15V

IC10

4, 5	−13.2V	12	3.2V
8	−13.2V	13	15V

IC11

7	8.5V	12	3.2V
8	−13.2V	13	15V

IC12

1	21V	2	15V

	G	S	D
Q3~6	–	0.3V	11.6V

	B	C	E
Q13, 14	−2.3V	15V	–
Q15, 16	–	15V	−2.4V
Q20	–	–	15V
Q21, 22	–	15V	–
Q25, 26	–	−45V (−62V)	−33V
Q27	–	−32V	−33V
Q30	–	−13.2V	−13.2V
Q32	–	–	−13.2V
Q33	–	10.7V	5.6V
Q34	–	13V	5.6V

IC12

1~7	6.8V	13	1.2V
8	1V	14, 15	6.8V
9	0V	16	14V
10~12	6.8V		

	B	C	E
Q4	6.0V	14.1V	5.4V
Q5	0.12V	13.9V	1.4V
Q6	14.0V	1.4V	14.1V
Q7	13.9V	0V	–
Q8	4.6V	–	–
Q9	3.0V	–	–
Q10	0V	4.7V	–
Q13	–	CATV : 12V OTHER : 0V	–
Q14	0V	0.2V	–
Q15	3.9V	0V	–
Q17	14.9V	15.0V	14.1V

X14-213X-XX

IC1

32	5V	45	5V

IC2~5

8	−30V	9	5V

IC8, 9

8	5V	9	−30V

IC12

1	2.9V	10, 11	3.3V
2, 3	3.6V	12	4.3V
4	2.9V	13	0V
5~9	0V	14	5.6V

IC13

1	2.9V	7	0V
2, 3	3.3V	8~10	3.3V
4	2.9V	11	3.6V
5	0V	12, 13	0V
6	3.9V	14	5.6V

IC14~16

1~3	0.4V	5~7	0.4V
4	−1.51V	8	6.8V

IC17

1	−0.2V	4	−151V
2	−0.3V	5~7	0.4V
3	−0.4V	8	15.0V

	B	C	E
Q1~4	–	–	5V
Q7	–	4.3V	–

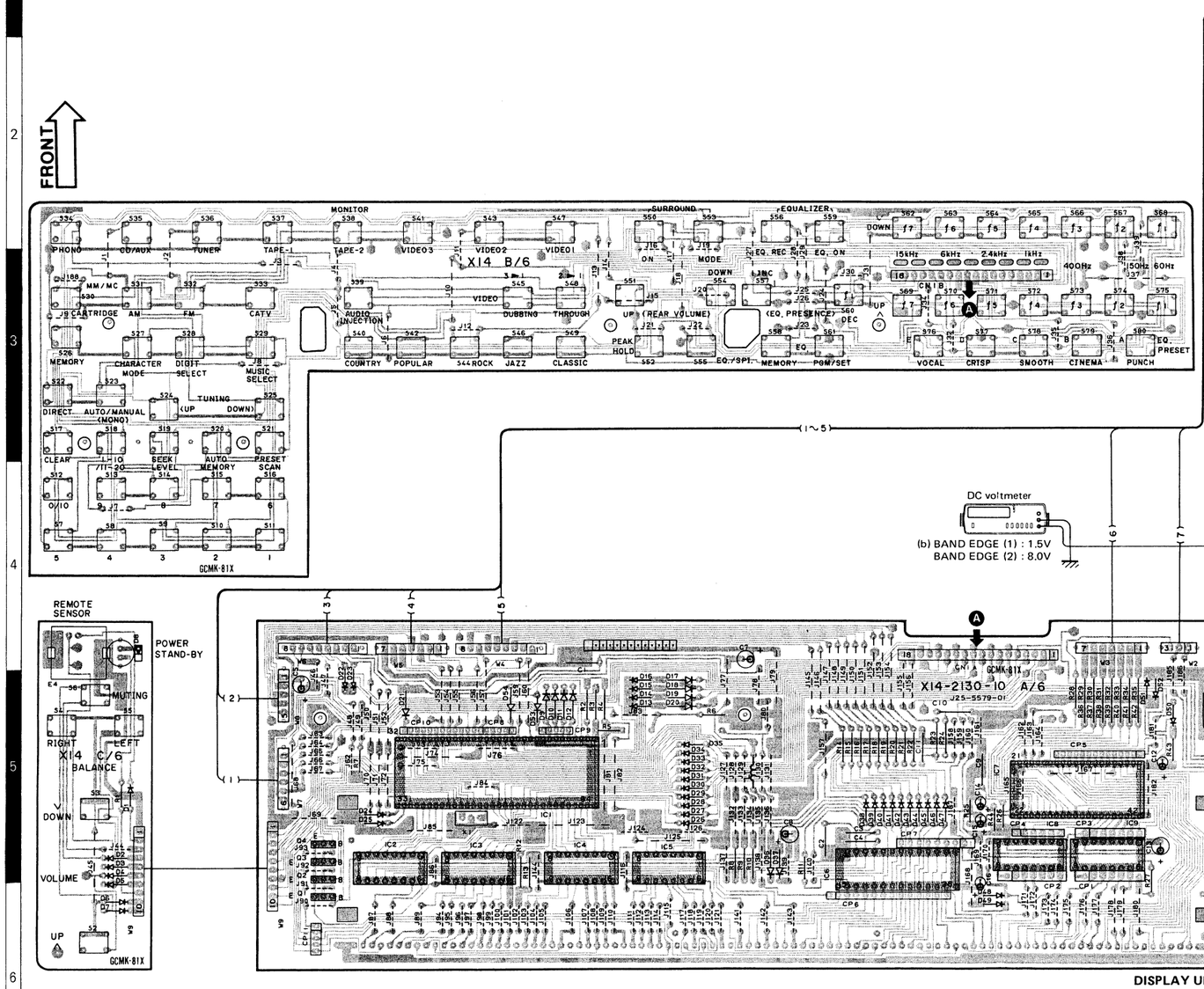
REGLAGE

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU AMPLI-TUNER	POINT DE L'ALIGNEMENT	ALIGNER POUR	FIG.
SECTION MF		Sauf en cas d'indications spéciales, règler chaque commutateur comme suit: SELECTEUR DES ENTRESS: MF MODE: STEREO					
1	DISCRIMINATEUR (1)	(A) 98,0MHz 1kHz.±75kHz dév 60dBμ(Entrée ANT)	Relier un voltmètre CC entre les TP4 et TP5.	MONO 98,0MHz	L2 (X05-)	0V	(a)
2	DISCRIMINATEUR (2)	(A) 98,0MHz 1kHz.±75kHz dév 60dBμ(Entrée ANT)	(B)	MONO 98,0MHz	L3 (X05-)	Distorsion minimale.	
Répéter les points 1 et 2 plusieurs fois.							
3	DISTORSION (STEREO)	(C) 98,0MHz 1kHz.±68,25kHz dév Selection:L ou R Signal pilote: ±6,75kHz dév 60dBμ(Entrée ANT)	(B)	98,0MHz	Tête H.F. IFT (X05-)	Distorsion minimale.	
4	SEPARATION	(C) 98,0MHz 1kHz.±68,25kHz dév Selection:L ou R Signal pilote: ±6,75kHz dév 60dBμ(Entrée ANT)	(B)	98,0MHz	VR2 (X05-)	Diaphonie minimale. Un compromis de réglage peut être nécessaire si les séparation de gauche à droite et droite à gauche sont inéglage.	
5	NINEAU D'ACCORDER	(A) 98,0MHz 0 dév 13dBμ(Entrée ANT)	–	AUTO ou MONO 98,0MHz	VR1 (X05-)	Ajuster VR1 et arrêter le mouvement de VR1 au moment où le FL1(TUNED)s'allume.	
SECTION MA		Laisser l'antenne bouche MA installée. SELECTEUR: AM					
(1)	BORD DE BANDE (1)	–	Relier un voltmètre CC au TP3.	530kHz (531kHz)	L9 (X05-)	1,5V	(b)
(2)	BORD DE BANDE (2)	–	Relier un voltmètre CC au TP3.	1610kHz (1602kHz)	TC2 (X05-)	8,0V	(b)
Répéter les points (1) et (2) plusieurs fois.							
(3)	ALIGNEMENT H.T. (1)	(D) 600(603)kHz 400Hz.30% mod	(B)	600kHz (603kHz)	L8 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
(4)	ALIGNEMENT H.T. (2)	(D) 1400(1404)kHz 400Hz.30% mod	(B)	1400kHz (1404kHz)	TC1 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
Répéter les points (3) et (4) plusieurs fois.							
(5)	TRANSFORMATEUR F.I.	(D) 1000(999)kHz 400Hz.30% mod	(B)	1000kHz (999kHz)	L10 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
SECTION AUDIO							
[1]	COURANA DE POLARISATION	–	(E) Connecter un voltmètre CC CP1(CP2)	Volume principal: 0	VR1 (G) VR2 (D) (X07-)	10mV	(c)
[2]	AJUSTEMENT CENTRAL DE L'ENVIRONNEMENT DOLBY	(F) Relier un AG(1kHz) au CD/AUX prise (L ou R).	Relier un oscilloscope entre les TP15 et GND.	Volume principal: 0 Augmenter le niveau d'entrée jusqu'à ce que la forme d'onde s'écrête.	VR3 (X05-)	Ajuster pour que les écrêtements des formes d'onde supérieure et inférieure soient symétriques.	(d)
[3]	AJUSTEMENT DE FUITE DE L'HORLOGE DE L'ENVIRONNEMENT DOLBY	(F) Couper le niveau de signal d'entrée.	Relier un oscilloscope entre les TP15 et GND.	–	VR4 (X05-)	Ajuster pour que la hauteur de la fréquence de l'horloge (plusieurs dizaines de kHz) devienne minimum.	(d)
Effectuer l'ajustement [3] après avoir terminé l'ajustement[2].							
[4]	AJUSTMENT DE LA SENSIBILITE DE L'ANALYSEUR DE SPECTRE	(F) Relier un AG (12mV, 1kHz) au CD/AUX prise (L et R).	–	–	VR1 (X14-)	Sur la position où le niveau le plus bas de l'analyseur de spectre s'allume.	

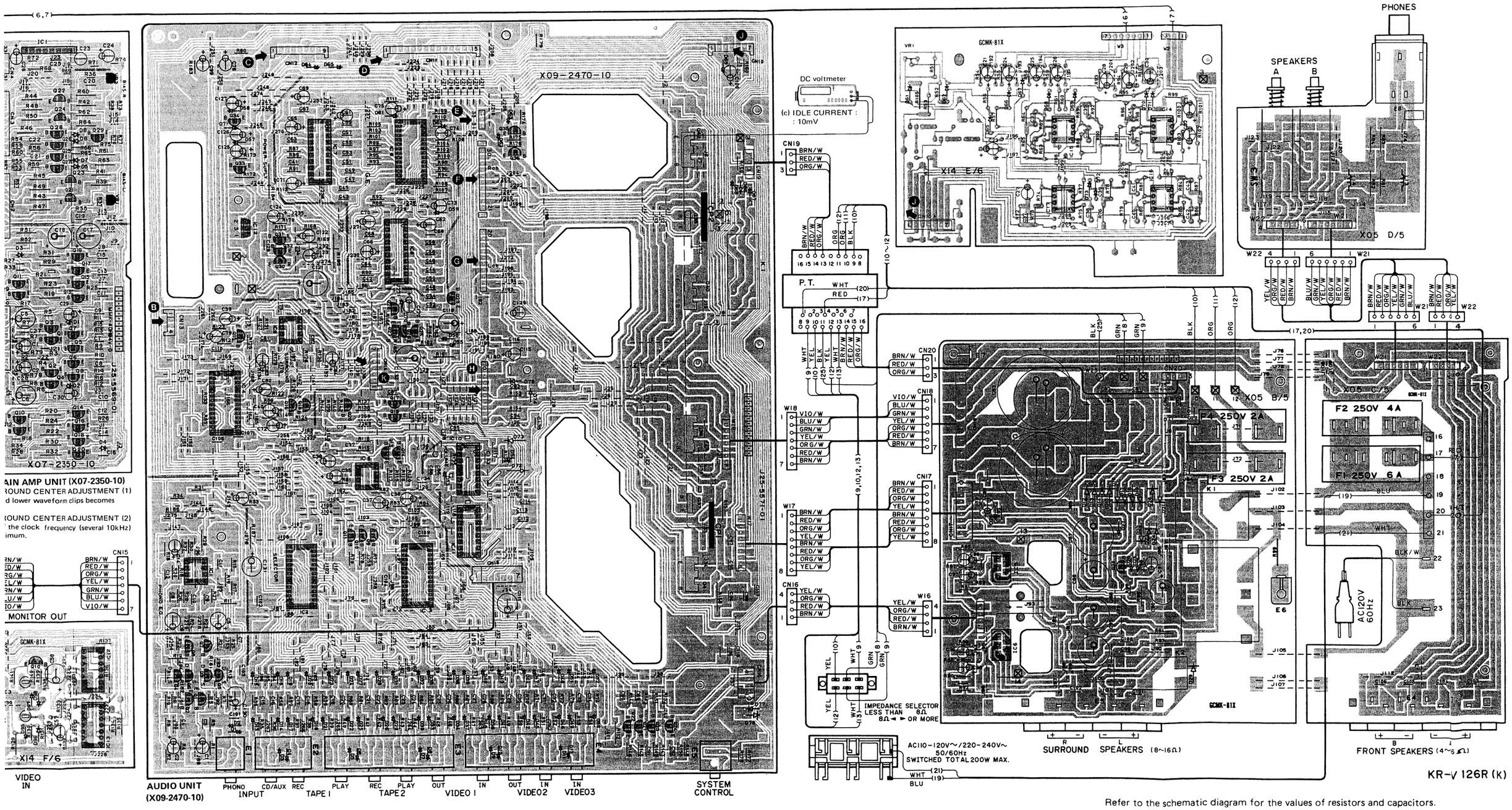
ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	RECEIVER-EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
UKW-EMPFANGSABTEILUNG		Außer wenn anders angegeben, die verschiedenen Schalter wie folgt einstellen: EINGANGSUMSCHALTER: FM MODE: STEREO					
1	DISKRIMINATOR (1)	(A) 98,0MHz 1kHz.±75kHz Hub 60dBμ(ANT-Eingang)	Einen Gleichspannungs-messer zwischen TP4 und TP5 anschließen.	MONO 98,0MHz	L2 (X05-)	0V	(a)
2	DISKRIMINATOR (2)	(A) 98,0MHz 1kHz.±75kHz Hub 60dBμ(ANT-Eingang)	(B)	MONO 98,0MHz	L3 (X05-)	Minimal Klirrfaktor.	
Abstimmungen 1 und 2 mehrere Male wiederholen.							
3	KLIRRFAKTOR (STEREO)	(C) 98,0MHz 1kHz.±68,25kHz Hub Wähler:L oder R Pilotten: ±6,75kHz Hub 60dBμ(ANT-Eingang)	(B)	98,0MHz	Frontende IFT (X05-)	Minimal Klirrfaktor.	
4	STEREO KANAL TRENNUNG	(C) 98,0MHz 1kHz.±68,25kHz Hub Wähler:L oder R Pilotten: ±6,75kHz Hub 60dBμ(ANT-Eingang)	(B)	98,0MHz	VR2 (X05-)	Minimales übersprechen. Eine Ausgleich-regelung kann notwendig sein, falls links-zu-rechts und rechts-zu-links. Trennungen ungleich sind.	
5	ABSTIMM PEGEL	(A) 98,0MHz 0 Hub 13dBμ(ANT-Eingang)	–	AUTO oder MONO 98,0MHz	VR1 (X05-)	Den Pegel wiederstand aufdrehen, und dem VR1 Halt geben wobei den FL1(TUNED) anzeiger leuchtet wird.	
MW-EMPFANGSABTEILUNG		Die MW-Rahmenantenne angebracht lassen. WÄHLER: AM					
(1)	BANDKANTE (1)	–	Einen Gleichspannungs-messer zu TP3 anschließen.	530kHz (531kHz)	L9 (X05-)	1.5V	(b)
(2)	BANDKANTE (2)	–	Einen Gleichspannungs-messer zu TP3 anschließen.	1610kHz (1602kHz)	TC2 (X05-)	8.0V	(b)
Abstimmungen (1) und (2) mehrere Male wiederholen.							
(3)	HF-ABGLEICH (1)	(D) 600(603)kHz 400Hz.30% mod	(B)	600kHz (603kHz)	L8 (X05-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
(4)	HF-ABGLEICH (2)	(D) 1400(1404)kHz 400Hz.30% mod	(B)	1400kHz (1404kHz)	TC1 (X05-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
Abstimmungen (3) und (4) mehrere Male wiederholen.							
(5)	ZF-ÜBERTRAGER	(D) 1000(999)kHz 400Hz.30% mod	(B)	1000kHz (999)kHz	L10 (X05-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
AUDIO-ABTEILUNG							
[1]	LEERLAUFSTROM	–	(E) Einen Gleichspannungs-messer über CP1(CP2)	Haupt-lautstärke: 0	VR1 (L) VR2 (R) (X07-)	10mV	(c)
[2]	MITTEL-EINSTELLUNG DES DOLBY-RAUMKLANGS	(F) Einen AG(1kHz) zu CD/AUX Buchse anschließen (L oder R).	Einen Oszilloskop zwischen TP15 und GND anschließen.	Haupt-lautstärke: 0 Den Eingangs-pegel erhöhen, bis die Wellen-form abgesch-nitten wird.	VR3 (X05-)	So einstellen, daß die Abschneidung der oberen und unteren Wellenform symmetrisch wird.	(d)
[3]	TAKTSTRENUNG-EINSTELLUNG DES DOLBY-RAUMKLANGS	(F) Den Eingangs-signalpegel abschneiden.	Einen Oszilloskop zwischen TP15 und GND anschließen.	–	VR4 (X05-)	So einstellen, daß die Höhe der Taktfrequenz(einige 10kHz) minimal wird.	(d)
Die Einstellung[3] nach Beendingung der Einstellung[2] durchführen.							
[4]	EINSTELLUNG DER SPEKTRUM-ANALYSATOR-EMPFINDLICHKEIT	(F) Einen AG(12mV,1kHz) zu CD/AUX Buchse anschließen (L und R).	–	–	VR1 (X14-)	Auf die Position, so daß der niedrigste Pegel des Spektrum-analysators leuchtet.	

PC BOARD (COMPONE

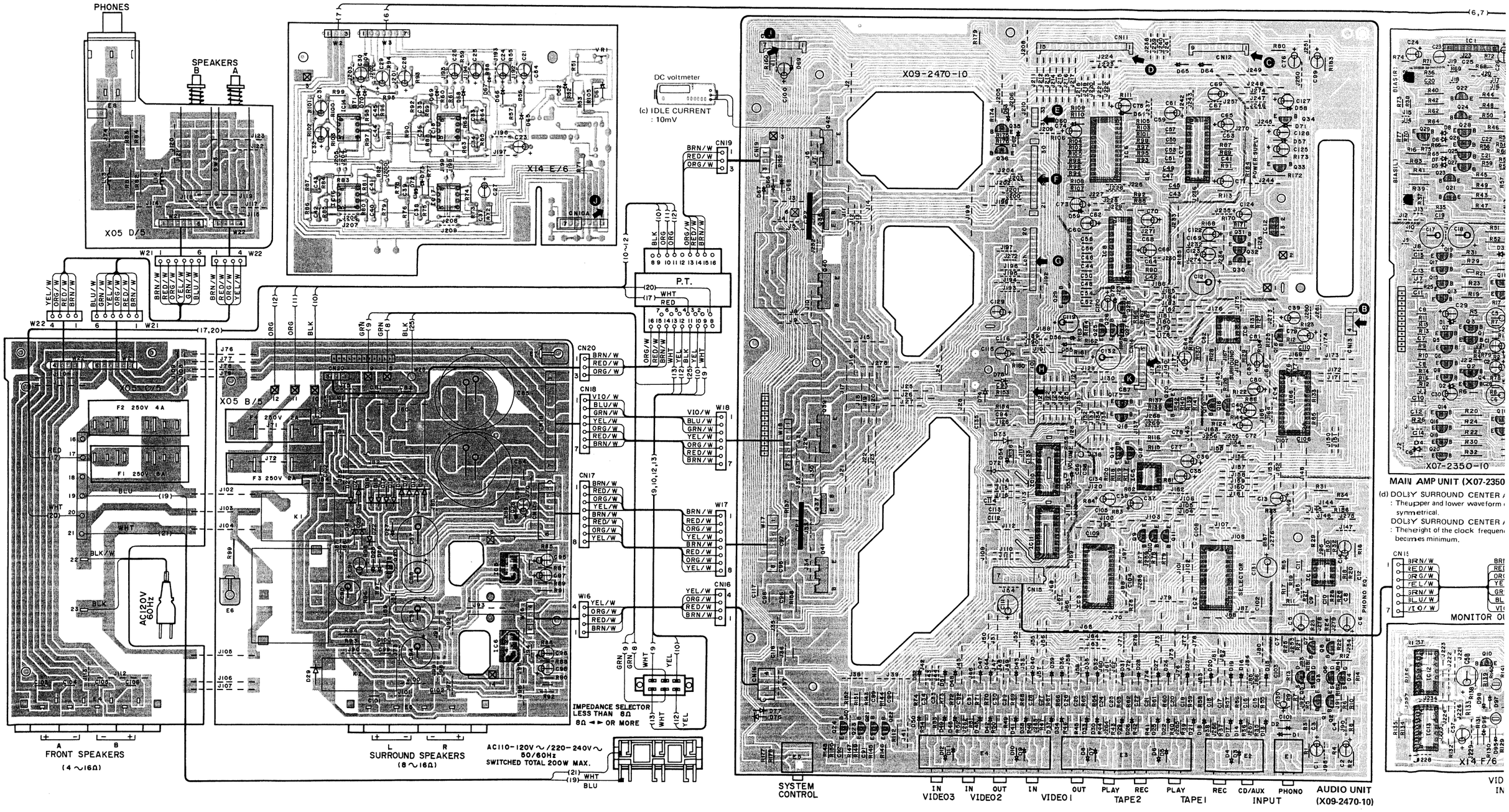


COMPONENT SIDE VIEW)

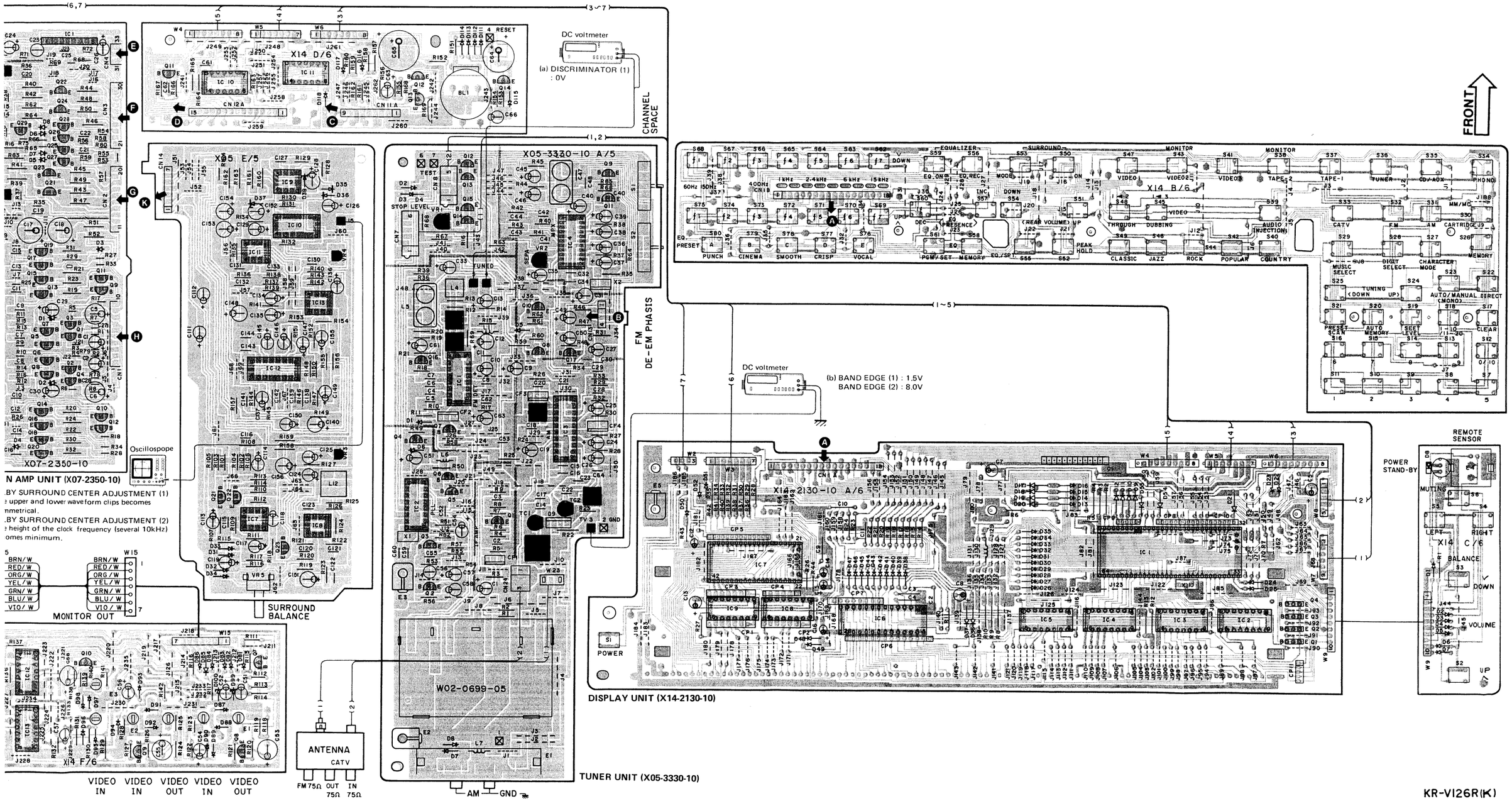


Refer to the schematic diagram for the values of resistors and capacitors.

PC BOARD (FOIL SIDE



:OIL SIDE VIEW)



Refer to the schematic diagram for the values of resistors and capacitors.

X05-333X-XX

IC1

1~3	3.0V	12	4.6V
4, 5	0V	13	1.3V
6	6.1V	14	0V
7~10	6.2V	15	0.42V
11	13.4V	16	0.47V

IC2

1	1.0V	11	2.7V
2	1.5V	12,13	5.0V
6, 7	0V	14	0V
8	14.0V	15	1.1V
9	0.12V	16	0V
10	0V		

IC3

1	0.1V	11	0.7V
2	0.5V	12	0V
3	0.9V	13	2.0V
4	0V	14	12.4V
5	1.4V	15	1.6V
6	1.1V	16	0V
7, 8	1.4V	17	3.8V
9	2.7V	18, 19	1.3V
10	10.2V	20	0V

X07-2350-10

IC1

6	0.7V

	B	C	E
Q3, 4	−2.0V	–	–
Q15, 16	–	1.1V	–
Q19, 20	–	−1.1V	–
Q21, 22	–	54V	0.6V
Q23, 24	–	−5.4V	−0.6V
Q25~28	–	–	0V
Q29	–	–	54V

X09-2470-10

IC1

2, 3	11.6V	5, 6	11.6V

IC2~4

1	−13.2V	28	5V

IC5

1~3	0.03V	5~7	0.03V
4	−13.2V	8	15V

IC6

1	6.8V	15	5V
11~14	−6.8V		

IC7, 8

18	15V	20	−13.2V

IC4

1~4	3.2V	14	4.9V
5	3.1V	15	0V
6, 7	3.2V	16	1.5V
8	3.1V	17	2.8V
9	3.2V	18	2.6V
10	0V	19, 20	2.7V
11	0.4V	21	3.4V
12	0V	22	13.5V
13	4.7V		

IC5, 6

1, 2	0V	4	0V
3	−13.5V	5	13.5V

IC9

1	5.4V	5	−0.9V
2	0.5V	6, 7	−0.5V
3	−6.6V	8	−5.8V
4	−0.5V		

IC10

1	6.7V	6	−0.5V
2	−0.5V	7	0V
3, 4	−0.2V	8	−5.8V
5	−6.6V		

IC9

1~3	−2.4V	5~7	−2.4V
4	−13.2V	18	15V

IC10

4, 5	−13.2V	12	3.2V
8	−13.2V	13	15V

IC11

7	8.5V	12	3.2V
8	−13.2V	13	15V

IC12

1	21V	2	15V

	G	S	D
Q3~6	–	0.3V	11.6V

	B	C	E
Q13, 14	−2.3V	15V	–
Q15, 16	–	15V	−2.4V
Q20	–	–	15V
Q21, 22	–	15V	–
Q25, 26	–	−45V (−62V)	−33V
Q27	–	−32V	−33V
Q30	–	−13.2V	−13.2V
Q32	–	–	−13.2V
Q33	–	10.7V	5.6V
Q34	–	13V	5.6V

IC12

1~7	6.8V	13	1.2V
8	1V	14, 15	6.8V
9	0V	16	14V
10~12	6.8V		

	B	C	E
Q4	6.0V	14.1V	5.4V
Q5	0.12V	13.9V	1.4V
Q6	14.0V	1.4V	14.1V
Q7	13.9V	0V	–
Q8	4.6V	–	–
Q9	3.0V	–	–
Q10	0V	4.7V	–
Q13	–	CATV : 12V OTHER : 0V	–
Q14	0V	0.2V	–
Q15	3.9V	0V	–
Q17	14.9V	15.0V	14.1V

X14-213X-XX

IC1

32	5V	45	5V

IC2~5

8	−30V	9	5V

IC8, 9

8	5V	9	−30V

IC12

1	2.9V	10, 11	3.3V
2, 3	3.6V	12	4.3V
4	2.9V	13	0V
5~9	0V	14	5.6V

IC13

1	2.9V	7	0V
2, 3	3.3V	8~10	3.3V
4	2.9V	11	3.6V
5	0V	12, 13	0V
6	3.9V	14	5.6V

IC14~16

1~3	0.4V	5~7	0.4V
4	−1.51V	8	6.8V

IC17

1	−0.2V	4	−15.1V
2	−0.3V	5~7	0.4V
3	−0.4V	8	15.0V

	B	C	E
Q1~4	–	–	5V
Q7	–	4.3V	–

(X05-333*-**)(A/5)
IC1 : LA1235
IC2 : LM7001
IC3 : LA1245
IC4 : LA3401

Q1 : 2SC1923(R,O)
Q2,3 : 2SC1845(F,E)
Q4,17 : 2SC2003(L,K)
Q5,6,13 : DTA124ES
Q7~9,12,14,15 : DTC114ES
Q10,11 : 2SC945(A)(Q,P)

D1,2,4,5,7,8 : ISS176 or ISS133
D6 : RD6.2ES(B2) or HZS6.2N(B2)
D9 : KV1236(Z2)

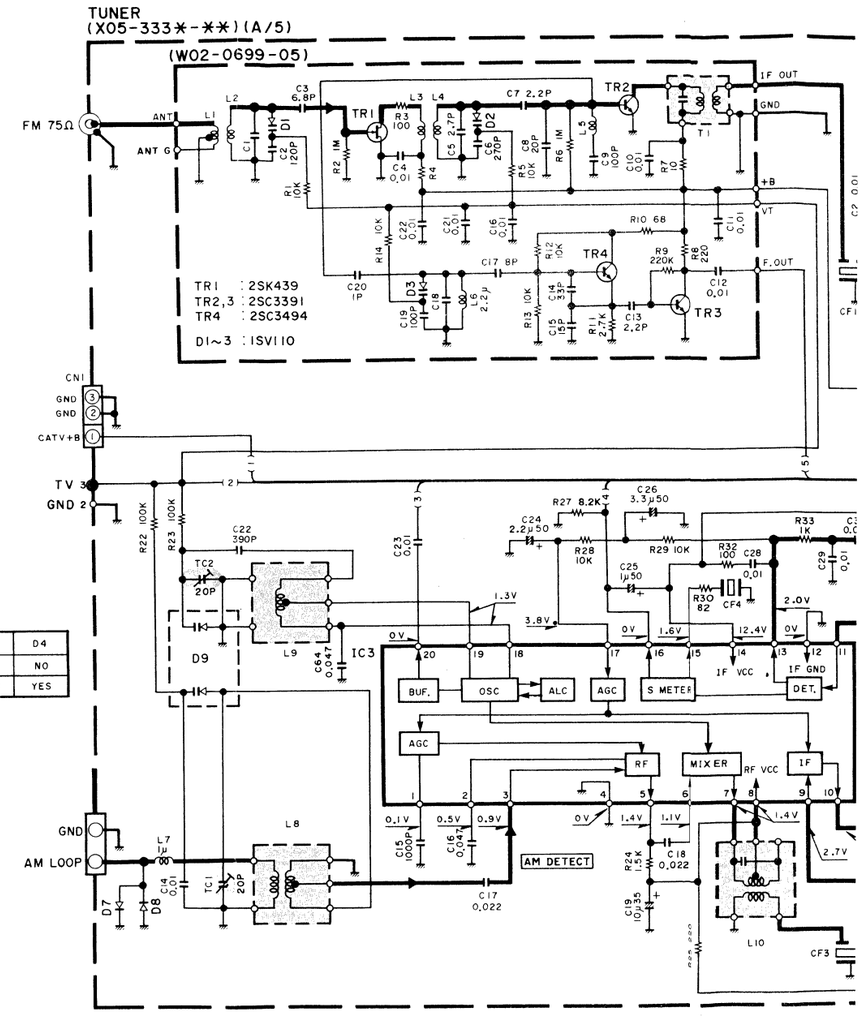
(X05-333*-**)

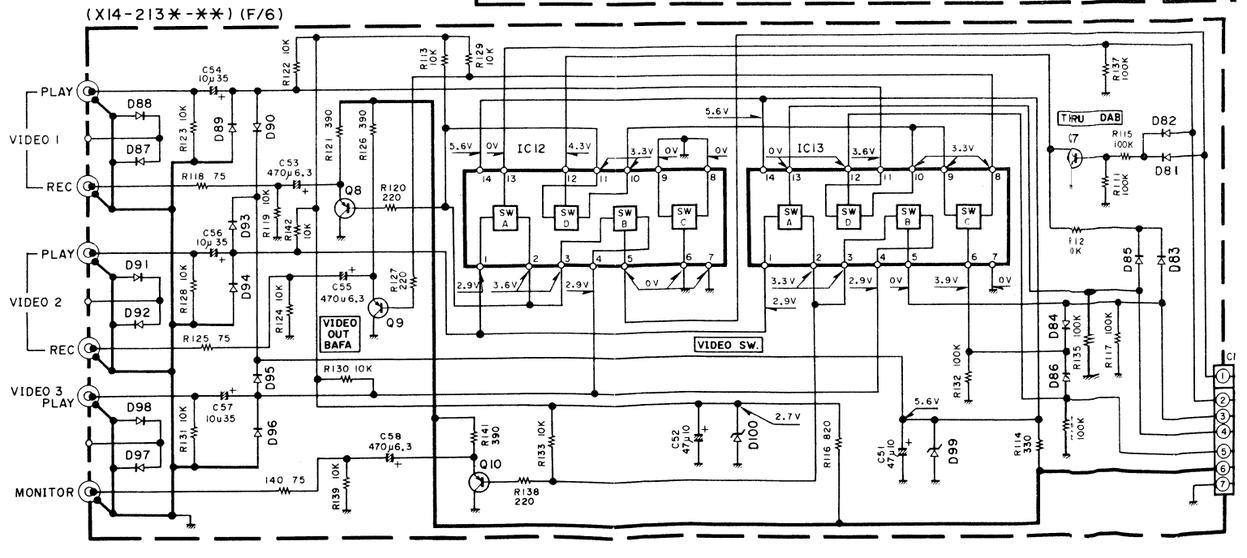
DESTINATION \ No.	R14	R42,43	C41,42	C43,44	S1,2	D4
K,P 0-10	12K	NO	820P	NO	NO	NO
U,UE 0-81	22K	YES	560P	YES	YES	YES

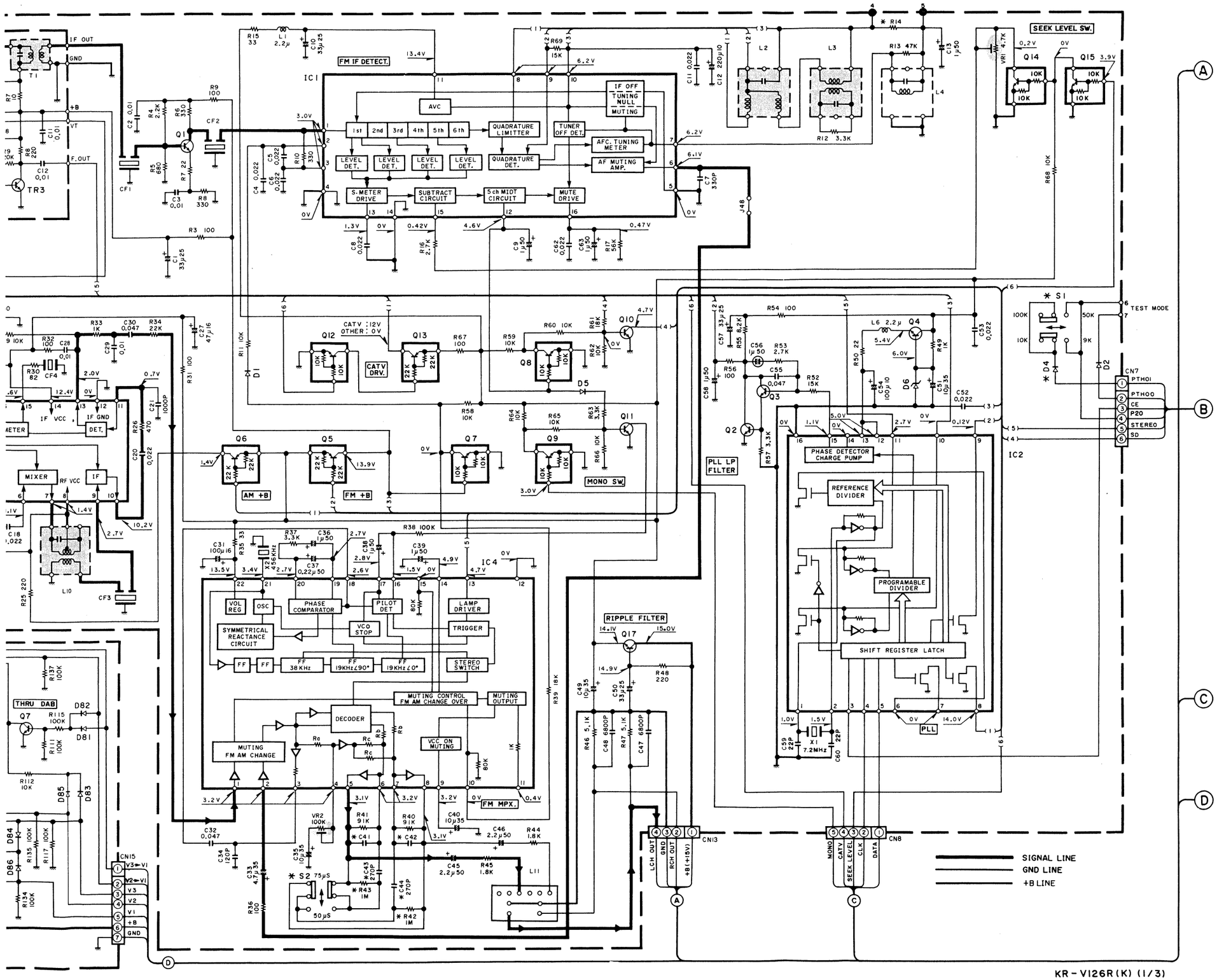
(X14-213*-**) (F/6)
IC12,13 : μPD4066BC

Q7 : 2SC945(A)(Q,P)
Q8~10 : 2SA999(E,F)

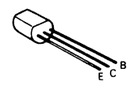
D81~98 : ISS176 or ISS133
D99 : RD5.6ES(B2) or HZS5.6N(B2)
D100 : RD2.7ES(B2) or HZS2.7N(B2)



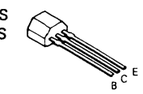




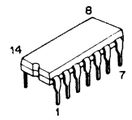
2SA999
2SC945(A)
2SC1845
2SC1923
2SC2003



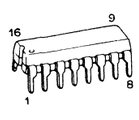
DTA124ES
DTC114ES



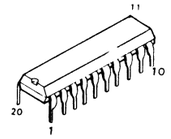
μPD4066BC



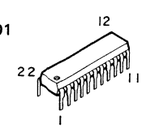
LA1235
LA7001



LA1245



LA3401



- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
- Les tensions c.c. doivent être measurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.
- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen. Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen instrumenten oder Geräten u.U. geringfügig.

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

KR-V126R(K) (1/3)

KR-V126R

KENWOOD

V | W | X | Y | Z | AA | AB | AC | AD | AE | AF

(X09-2470-10)

IC1,5,9 : NJM4558D-A or M5218P-A
IC2 : TC9164N
IC3 : TC9163N
IC4 : TC9162N
IC6 : LC7522

IC7,8 : M5229P
IC10,11 : CXD1120P-1
IC12 : μPC78M15H

Q1,2,7~10,17,18,23,24 : 2SC2878
Q3~6 : 2SK163(L,M)
Q11,20,28,31,32 : 2SA733(A)(Q,P)
Q13,14,19 : 2SC945(A),(Q,P)
Q15,16,21,22 : 2SC1845(F,E)
Q25,26 : 2SB941(Q,P)
Q27 : 2SD1929

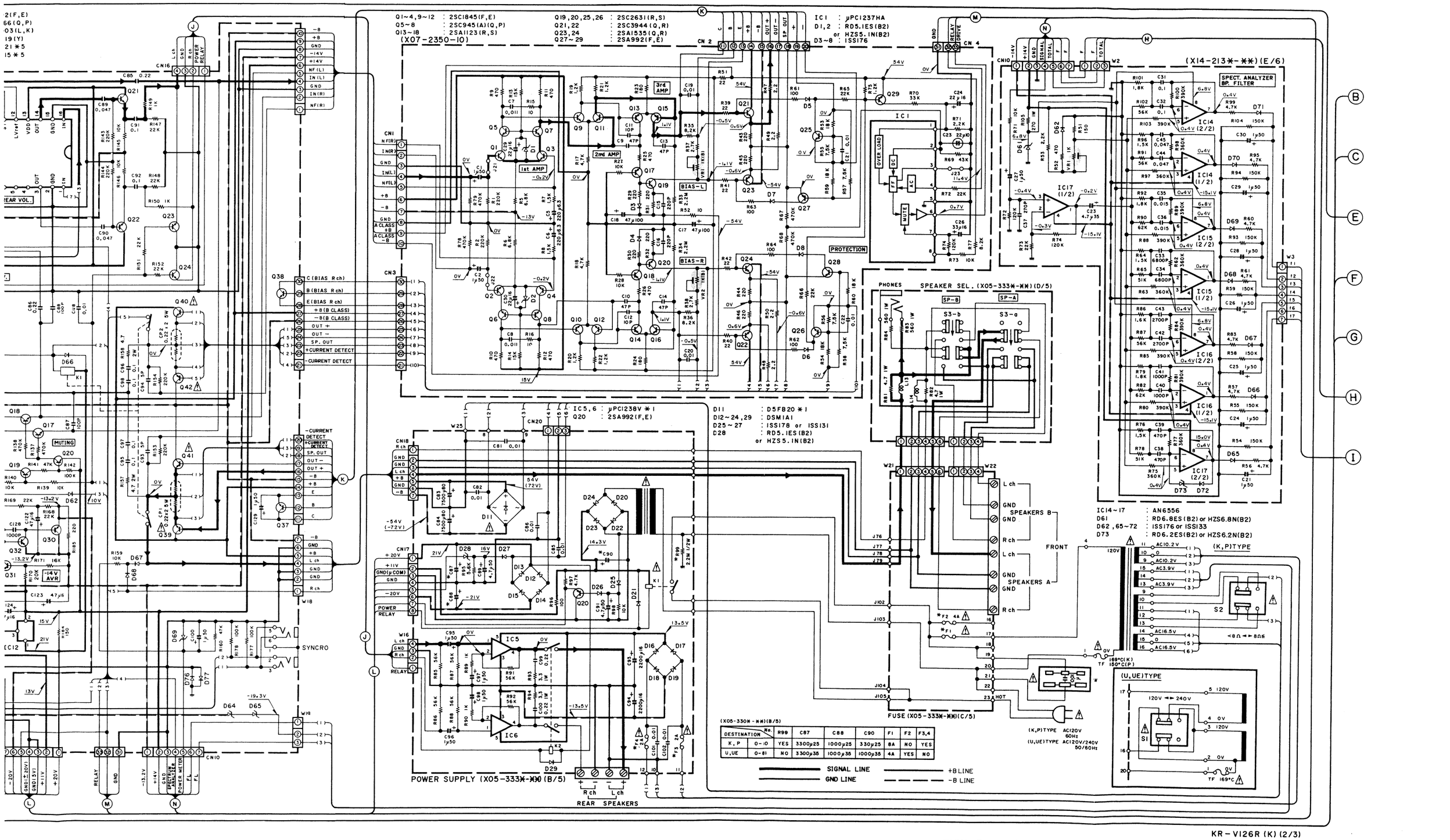
Q29,35 : 2SA992(F,E)
Q30,33,34 : 2SD1266(Q,P)
Q36 : 2SC2003(L,K)
Q37,38 : 2SC3419(Y)
Q39,40 : 2SC2921 * 5
Q41,42 : 2SA1215 * 5

D1~52,58,76,77 : ISS176 or ISS133
D53,61,70 : RD5.1ES(B2) or HZS5.1N(B2)
D54 : RD3.3ES(B2) or HZS3.3N(B2)
D55,56 : RD18ES(B)
D57,64,65,71 : RD6.2ES(B2) or HZS6.2N(B2)
D59,60 : RD6.8ES(B2) or HZS6.8N(B2)

D62,63,66~68 : ISS178 or ISS131
D69 : RD4.7ES(B2)

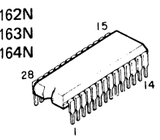
2SA733(A) 2SC2631
2SA992 2SC2878
2SA1123 2SD1929
2SC945(A) 2SC1845
2SC2003

2SD1266
2SA1215 2SC2921
2SC3419
2SA1535 2SB941 2SC3944
2SK163
NJM4558D-A
CXD1120P-1
M5229P
AN6556
μPC1237HA
LC7522
μPC78M15H
TC9162
TC9163
TC9164
μ

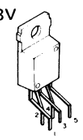


KR-V126R (K) (2/3)

TC9162N
TC9163N
TC9164N



μPC1238V

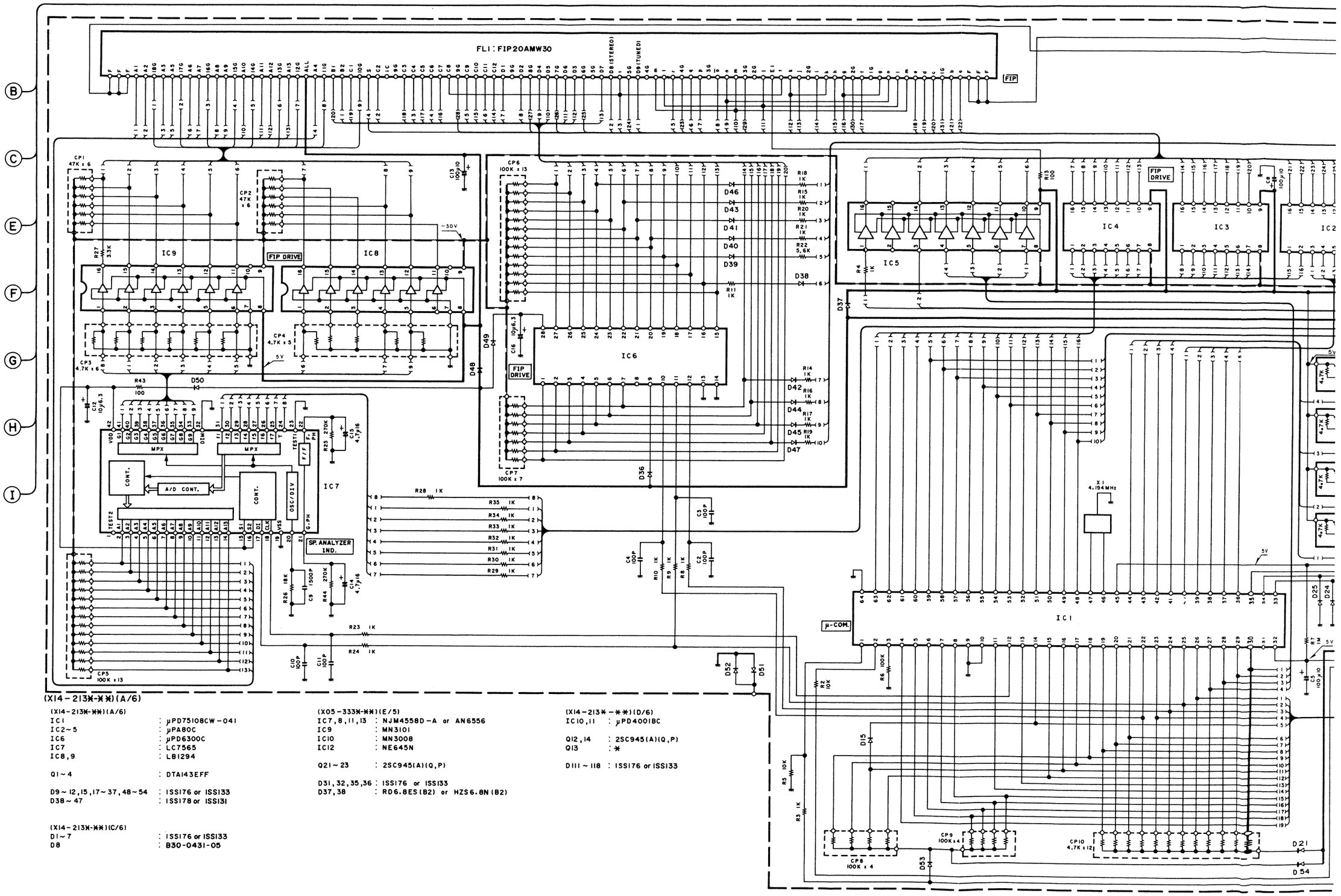


- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
- Les tensions c.c. doivent être measurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.
- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen. Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig.

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

KR-V126R

KENWOOD



(X14-213X-**)(A/6)

IC1	: μPD75108CW-041
IC2~5	: μPA80C
IC6	: μPD6300C
IC7	: LC7565
IC8,9	: LB1294
Q1~4	: DTA143EFF
D9~12,15,17~37,48~54	: ISS176 or ISS133
D38~47	: ISS178 or ISS131

(X14-213X-**)(C/6)

D1~7	: ISS176 or ISS133
D8	: B30-0431-05

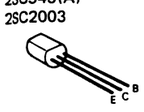
(X05-333X-**)(E/5)

IC7,8,11,13	: NJM4558D-A or AN6556
IC9	: MN3101
IC10	: MN3008
IC12	: NE645N
Q21~23	: 2SC945(A)(Q,P)
D31,32,35,36	: ISS176 or ISS133
D37,38	: RD6.8ES(B2) or HZS6.8N(B2)

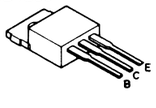
(X14-213*-**)(D/6)

IC10,11	: μPD4001BC
Q12,14	: 2SC945(A)(Q,P)
Q13	: *
D111~118	: ISS176 or ISS133

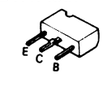
2SC945(A)
2SC2003



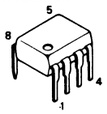
2SD1266



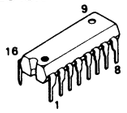
DTA143EF



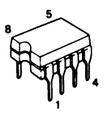
NJM4558D-A



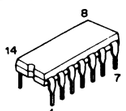
NE645N



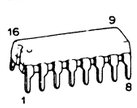
MN3101



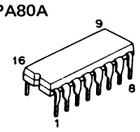
μPD4001BC



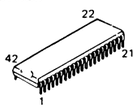
LB1294



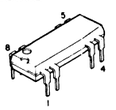
μPA80A



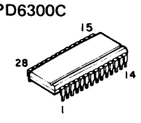
LC7565



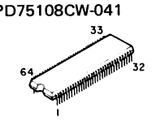
MN3008

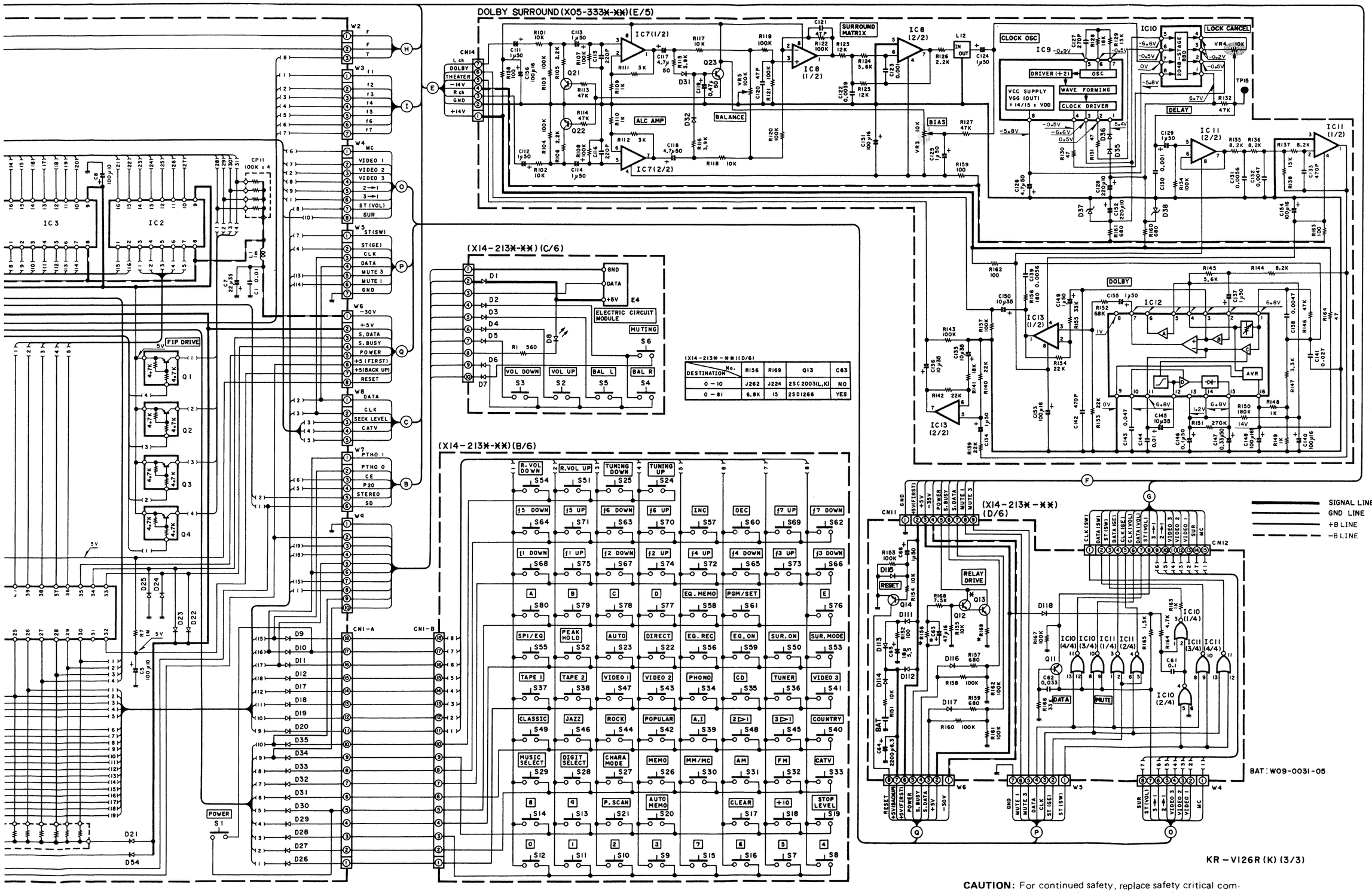


μPD6300C



μPD75108CW-041





KR-V126R (K) (3/3)

- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
- Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.
- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen. Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen instrumenten oder Geräten u.U. geringfügig.

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

KR-V126R

KENWOOD

KR-V126R KR-V126R

EXPLODED VIEW

A	M3x5 (Bi)	: N35-3005-46
B	Ø3x8 (Bi-Tap)	: N89-3008-46
C	PR	: N29-0035-05
D	M3x6	: N30-3006-46
E	Ø3x8 (Bi-Tap) BLK	: N89-3008-45
F	Ø3x10 (Bi-Tap)	: N89-3010-46
G	Ø4x10 (Bi-Tap)	: N89-4010-46
H	M3x12	: N09-0333-05
J	Ø4x8 (Bi-Tap) BLK	: N89-4008-45

KR-V126R

Parts with the exploded numbers larger than 700 are not supplied.

× New Part
Parts witho
Les articles
Telle ohne P

Ref. No. 参照番号
1
2
3
3
7
8
9
10
C1
⚠ 14
⚠ 15
⚠ 15
F1 ×2
28
29
⚠ 30
34
35
36
37
38
⚠ 42
⚠ 42
⚠ 42
46
C
⚠ S1 S2
50

E: Scandir
U: PX(Far
UE: AAFE

PARTS LIST

× New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
			KR-V126R			
1	1A	*	A01-1546-01	METALLIC CABINET		
2	3A	*	A20-5205-02	PANEL		
3	1B	*	A70-0167-05	REMOTE CONTROLLER ASSY	KUUE	
3	1B	*	A70-0176-05	REMOTE CONTROLLER ASSY	P	
7	3B	*	B01-0346-02	PANEL ESCUTCHEON ASSY		
8	3B	*	B01-0350-01	PANEL ESCUTCHEON		
9	3A	*	B03-2280-04	DRESSING PLATE (POWER,SENSOR)		
10	2A	*	B10-0873-03	FRONT GLASS (INDICATOR)		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	UUE	
-			B46-0095-03	WARRANTY CARD	UUE	
-			B46-0121-03	WARRANTY CARD	P	
-		*	B50-6679-00	INSTRUCTION MANUAL(ENGLISH)	KUUE	
-		*	B50-6680-00	INSTRUCTION MANUAL(ENG,FRE)	P	
-			B58-0223-04	CAUTION CARD (PRE-SET 120V)	U	
-			B58-0269-04	CAUTION CARD	K	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	UE	
-			B59-0092-00	SERVICE DIRECTORY	UUE	
C1			C91-0647-05	CERAMIC 0.01UF P		
⚠ 14	1D		E03-0086-05	AC OUTLET		
⚠ 15	1D		E30-0812-05	AC POWER CORD	UUE	
⚠ 15	1D		E30-2209-05	AC POWER CORD	KP	
F1 ,2	1C	*	F05-1627-05	FUSE	P	
-		*	H01-7493-04	ITEM CARTON CASE		
-		*	H10-3407-02	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-3408-02	POLYSTYRENE FOAMED FIXTURE		
-		*	H11-0006-04	POLYSTYRENE FOAMED BOARD		
-		*	H12-1164-04	PACKING FIXTURE		
-		*	H13-0008-04	CARTON BOARD		
-			H25-0181-04	PROTECTION BAG (150X260X0.05)		
-			H25-0224-04	PROTECTION BAG (800X400X0.03)		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
28	3B,3D		J02-0126-05	FOOT		
29	1B		J19-2815-04	ANTENNA HOLDER		
⚠ 30	1D		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
34	2A		K27-1644-04	KNOB (BUTTON) SPEAKERS		
35	2A		K29-2333-04	KNOB (POWER)		
36	3A	*	K29-2667-03	KNOB (VIDEO,TAPE,TUN,CD,PHONO)		
37	3A,3B	*	K29-2668-04	KNOB (A-E,MUSIC,LEVEL)		
38	3B	*	K29-2671-04	KNOB (VOLUME)		
⚠ 42	1C	*	L01-7701-05	POWER TRANSFORMER	K	
⚠ 42	1C	*	L01-7705-05	POWER TRANSFORMER	UUE	
⚠ 42	1C	*	L01-7707-05	POWER TRANSFORMER	P	
46	1D		N08-0128-35	BINDING POST (GND)		
C	2B,2C		N29-0035-05	PUSH RIVET (3.5X5.5)		
⚠ S1	1D		S31-2083-05	SLIDE SWITCH(POWER)	UUE	
S2	1D		S31-2113-05	SLIDE SWITCH(IMPEDANCE SEL)		
50	1B		T90-0104-25	LOOP ANTENNA		

E: Scandinavia & Europe **K:** USA **P:** Canada
U: PX(Far East, Hawaii) **T:** England **M:** Other Areas
UE: AAFES(Europe) **X:** Australia

⚠ indicates safety critical components.

PARTS LIST

× New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
51	1B		T90-0121-05	T TYPE ANTENNA		
52	1B		T90-0136-05	ANTENNA ADAPTOR		
-			M50461-057SP	IC(REMOTE CONTROLLER)		
56	1D	*	W02-0741-05	ELECTRIC CIRCUIT MODULE		
57	2C		W09-0031-05	BATTERY		
			TUNER UNIT (X05-3330-10)			
C1		*	CE04LW1E330M	ELECTRO 33UF 25WV		
C2 ,3			CK45FF1H103Z	CERAMIC 0.010UF Z		
C4 -6			CK45FF1H223Z	CERAMIC 0.022UF Z		
C7			CC45FSL1H331J	CERAMIC 330PF J		
C8			CK45FF1H223Z	CERAMIC 0.022UF Z		
C9			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C10		*	CE04LW1E330M	ELECTRO 33UF 25WV		
C11			CK45FF1H223Z	CERAMIC 0.022UF Z		
C12		*	CE04LW1A221M	ELECTRO 220UF 10WV		
C13			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C14			CK45FF1H103Z	CERAMIC 0.010UF Z		
C15			CK45FB1H102K	CERAMIC 1000PF K		
C16			CK45FF1H473Z	CERAMIC 0.047UF Z		
C17 ,18			CK45FF1H223Z	CERAMIC 0.022UF Z		
C19			CE04LW1V100M	ELECTRO 10UF 35WV		
C20			CF92FV1H223J	MF 0.022UF J		
C21			CF92FV1H102J	MF 1000PF J		
C22		*	CC93FCH1H391J	CERAMIC 390PF J		
C23			CK45FF1H103Z	CERAMIC 0.010UF Z		
C24			CE04LW1H2R2M	ELECTRO 2.2UF 50WV		
C25			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C26			CE04LW1H3R3M	ELECTRO 3.3UF 50WV		
C27			CE04LW1C470M	ELECTRO 47UF 16WV		
C28 ,29			CF92FV1H103J	MF 0.010UF J		
C30			CF92FV1H473J	MF 0.047UF J		
C31			CE04LW1C101M	ELECTRO 100UF 16WV		
C32			CF92FV1H473J	MF 0.047UF J		
C33			CE04LW1V4R7M	ELECTRO 4.7UF 35WV		
C34			CC45FSL1H121J	CERAMIC 120PF J		
C35			CE04LW1V100M	ELECTRO 10UF 35WV		
C36			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C37		*	CE04LW1HR22M	ELECTRO 0.22UF 50WV		
C38 ,39			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C40			CE04LW1V100M	ELECTRO 10UF 35WV		
C41 ,42			CK45FB1H561K	CERAMIC 560PF K	UUE	
C41 ,42			CK45FB1H821K	CERAMIC 820PF K	KP	
C43 ,44			CC45FSL1H271J	CERAMIC 270PF J	UUE	
C45 ,46			CE04LW1H2R2M	ELECTRO 2.2UF 50WV		
C47 ,48			CF92FV1H682J	MF 6800PF J		
C49			CE04LW1V100M	ELECTRO 10UF 35WV		
C50		*	CE04LW1E330M	ELECTRO 33UF 25WV		
C51			CE04LW1V100M	ELECTRO 10UF 35WV		
C52 ,53			CK45FF1H223Z	CERAMIC 0.022UF Z		
C54			CE04LW1A101M	ELECTRO 100UF 10WV		
C55			CF92FV1H473J	MF 0.047UF J		
C56			C90-1349-05	NP-ELEC 1UF 50WV		
C57		*	CE04LW1E330M	ELECTRO 33UF 25WV		

E: Scandinavia & Europe **K:** USA **P:** Canada
U: PX(Far East, Hawaii) **T:** England **M:** Other Areas
UE: AAFES(Europe) **X:** Australia

⚠ indicates safety critical components.

PARTS LIST

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格			Destination 仕向	Remarks 備考
C58			CE04LW1H010M	ELECTRO	1.0UF	50WV		
C59 ,60			CC45FCH1H220J	CERAMIC	22PF	J		
C62			CK45FF1H223Z	CERAMIC	0.022UF	Z		
C63			CE04LW1H010M	ELECTRO	1.0UF	50WV		
C64			CK45FF1H473Z	CERAMIC	0.047UF	Z		
C81 ,82			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C83 ,84			C90-1318-05	ELECTRO	7500UF	80WV		
C85 ,86			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C87			CE04EW1E332M	ELECTRO	3300UF	25WV	KP	
C87		*	CE04EW1V332M	ELECTRO	3300UF	35WV	UUE	
C88			CE04EW1E102M	ELECTRO	1000UF	25WV	KP	
C88			CE04EW1V102M	ELECTRO	1000UF	35WV	UUE	
C89			CE04LW1H4R7M	ELECTRO	4.7UF	50WV		
C90			CE04EW1E331M	ELECTRO	330UF	25WV	KP	
C90			CE04EW1V102M	ELECTRO	1000UF	35WV	UUE	
C91			CE04LW1H4R7M	ELECTRO	4.7UF	50WV		
C93 ,94		*	CE04EW1C222M	ELECTRO	2200UF	16WV		
C95 -98			CE04LW1H010M	ELECTRO	1.0UF	50WV		
C99 ,100			CF92FV1H224J	MF	0.22UF	J		
C101,102			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C111-114			CE04LW1H010M	ELECTRO	1.0UF	50WV		
C115,116			CC45FSL1H221J	CERAMIC	220PF	J		
C117,118			CE04LW1H4R7M	ELECTRO	4.7UF	50WV		
C119			CE04LW1HR47M	ELECTRO	0.47UF	50WV		
C120,121			CC45FSL1H470J	CERAMIC	47PF	J		
C122			CF92FV1H392J	MF	3900PF	J		
C123			CF92FV1H102J	MF	1000PF	J		
C124,125			CE04LW1H010M	ELECTRO	1.0UF	50WV		
C126			CE04LW1H4R7M	ELECTRO	4.7UF	50WV		
C127			CC45FSL1H271J	CERAMIC	270PF	J		
C128		*	CE04LW1A221M	ELECTRO	220UF	10WV		
C129			CE04LW1H010M	ELECTRO	1.0UF	50WV		
C130			CF92FV1H102J	MF	1000PF	J		
C131			CF92FV1H562J	MF	5600PF	J		
C132			CF92FV1H472J	MF	4700PF	J		
C133			CK45FB1H471K	CERAMIC	470PF	K		
C134			CE04LW1H010M	ELECTRO	1.0UF	50WV		
C135,136			CE04LW1V100M	ELECTRO	10UF	35WV		
C137			CE04LW1H010M	ELECTRO	1.0UF	50WV		
C138			CF92FV1H472J	MF	4700PF	J		
C139			CF92FV1H562J	MF	5600PF	J		
C140			CE04LW1C101M	ELECTRO	100UF	16WV		
C141			CF92FV1H273J	MF	0.027UF	J		
C142			CK45FB1H471K	CERAMIC	470PF	K		
C143			CF92FV1H473J	MF	0.047UF	J		
C144			CF92FV1H103J	MF	0.010UF	J		
C145			CE04LW1V100M	ELECTRO	10UF	35WV		
C146		*	CE04LW1H0R1M	ELECTRO	0.1UF	50WV		
C147			CE04LW1HR33M	ELECTRO	0.33UF	50WV		
C148			CE04LW1C101M	ELECTRO	100UF	16WV		
C149			CE04LW1H010M	ELECTRO	1.0UF	50WV		
C150			CE04LW1V100M	ELECTRO	10UF	35WV		
C151			CE04LW1C101M	ELECTRO	100UF	16WV		
C152		*	CE04LW1A221M	ELECTRO	220UF	10WV		
C153,154			CE04LW1C101M	ELECTRO	100UF	16WV		

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

⚠ indicates safety critical components.

PARTS LIST

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle ohne **Parts No.** werden nicht geliefert.

	Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
	C155			CE04LW1H010M	ELECTRO 1.0UF 50WV		
	C156			CE04LW1C101M	ELECTRO 100UF 16WV		
	C157,158			CK45FF1H103Z	CERAMIC 0.010UF Z	UUE	
	TC1 ,2			C05-0303-05	CERAMIC TRIMMER CAPACITOR(20PF		
	E1	2D		E20-0231-05	SCREW TERMINAL BOARD(2P)AM,GND		
	E4	1D		E20-0823-05	LOCK TERMINAL BOARD(8P)SP		
	E5	1C		E20-0459-05	LOCK TERMINAL BOARD(4P)SURR		
	E8	2B		E11-0162-05	PHONE JACK (3P)		
⚠	F1	1C		F05-8029-05	FUSE (UL) (250V 8A)	KP	
⚠	F1 ,2	1C		F05-4022-05	FUSE (250V 4A)	UUE	
⚠	F3 ,4	1C		F06-2027-05	FUSE (UL) (250V 2A)	KP	
	61	1C		J13-0041-05	FUSE CLIP		
⚠	65	1C		L01-7651-05	POWER TRANSFORMER	KP	
	65	1C	*	L01-7658-05	POWER TRANSFORMER	UUE	
	CF1 ,2			L72-0140-05	CERAMIC FILTER		
	CF3			L72-0099-05	CERAMIC FILTER		
	CF4			L72-0096-05	CERAMIC FILTER		
	L1			L40-2292-17	SMALL FIXED INDUCTOR(2.2UH,M)		
	L2		*	L30-0464-05	FM IFT		
	L3		*	L30-0465-05	FM IFT		
	L4			L39-0128-05	PEAKING COIL		
	L6			L40-2292-17	SMALL FIXED INDUCTOR(2.2UH,M)		
	L7			L40-1092-14	SMALL FIXED INDUCTOR(1.0UH,M)		
	L8			L31-0509-05	MW-RF COIL		
	L9			L32-0277-15	MW OSCILLATING COIL		
	L10			L30-0362-05	AM IFT		
	L11			L79-0739-05	LC FILTER		
	L12			L79-0312-05	LC FILTER		
	L13 ,14			L39-0085-05	PHASE-COMPENSATION COIL		
	X1		*	L77-1122-05	CRYSTAL RESONATOR		
	X2		*	L78-0208-05	RESONATOR (456KHZ)		
	R3			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
	R15			RD14GB2E330J	FL-PROOF RD 33 J 1/4W		
	R31			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
	R35			RD14GB2E330J	FL-PROOF RD 33 J 1/4W		
	R50			RD14GB2E220J	FL-PROOF RD 22 J 1/4W		
	R81 ,82			RS14KB3A4R7J	FL-PROOF RS 4.7 J 1W		
	R83 ,84			RS14KB3A561J	FL-PROOF RS 560 J 1W		
	R93 ,94		*	RS14KB3A3R3J	FL-PROOF RS 3.3 J 1W		
	R96			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
	R99			R92-0173-05	RC 2.2M M 1/2W	KP	
	R158,159			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
	R160,161			RD14GB2E681J	FL-PROOF RD 680 J 1/4W		
	R162,163			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
	R164			RD14GB2E470J	FL-PROOF RD 47 J 1/4W		
	VR1			R12-1069-05	TRIMMING POT.(4.7K)STOP LEVEL		
	VR2			R12-5046-05	TRIMMING POT.(100K)SEPA		
	VR3 ,4			R12-3100-05	TRIMMING POT.(10K)BIAS,LO CANC		
	VR5	2D	*	R05-5012-05	POTENTIOMETER (SURROUD BALANCE		
⚠	K1	1C		S51-1036-05	MAGNETIC RELAY		
	K2	1C		S51-2078-05	MAGNETIC RELAY		
	S1 ,2	2D		S31-2094-05	SLIDE SWITCH (H.FM DE-EMP)	UUE	
	S3	2B		S42-2152-05	MULTIPLE PUSH SWITCH(SPEAKERS)		

E: Scandinavia & Europe **K**: USA **P**: Canada
U: PX(Far East, Hawaii) **T**: England **M**: Other Areas
UE: AAFES(Europe) **X**: Australia

⚠ indicates safety critical components.

PARTS LIST

× New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
D1 ,2			1SS133	DIODE		
D1 ,2			1SS176	DIODE		
D4 ,5			1SS133	DIODE	UUE	
D4 ,5			1SS176	DIODE	UUE	
D5			1SS133	DIODE	KP	
D5			1SS176	DIODE	KP	
D6			HZS6.2N(B2)	ZENER DIODE		
D6			RD6.2ES(B2)	ZENER DIODE		
D7 ,8			1SS133	DIODE		
D7 ,8			1SS176	DIODE		
D9			KV1236(Z2)	VARIABLE CAPACITANCE DIODE		
D11			D5FB20*1	DIODE		
D12 -24			DSM1A1	DIODE		
D25 -27			1SS131	DIODE		
D25 -27			1SS178	DIODE		
D28			HZS5.1N(B2)	ZENER DIODE		
D28			RD5.1ES(B2)	ZENER DIODE		
D29			DSM1A1	DIODE		
D31 ,32			1SS133	DIODE		
D31 ,32			1SS176	DIODE		
D35 ,36			1SS133	DIODE		
D35 ,36			1SS176	DIODE		
D37 ,38			HZS6.8N(B2)	ZENER DIODE		
D37 ,38			RD6.8ES(B2)	ZENER DIODE		
IC1			LA1235	IC(FM IF/DETECTION)		
IC2			LM7001	IC(PLL FREQUENCY SYNTHESIZER)		
IC3			LA1245	IC(AM)		
IC4		*	LA3401	IC(FM MPX)		
IC5 ,6			UPC1238V*1	IC(POWER AMP)		
IC7 ,8			AN6556	IC(OP AMP X2)		
IC7 ,8			NJM4558D-A	IC(OP AMP X2)		
IC9			MN3101	IC(BBD CLOCK DRIVER)		
IC10			MN3008	IC(BBD)		
IC11			AN6556	IC(OP AMP X2)		
IC11			NJM4558D-A	IC(OP AMP X2)		
IC12			NE645N	IC(DOLBY B PROCESSOR)		
IC13			AN6556	IC(OP AMP X2)		
IC13			NJM4558D-A	IC(OP AMP X2)		
Q1			2SC1923(R,Q)	TRANSISTOR		
Q2 ,3			2SC1845(F,E)	TRANSISTOR		
Q4			2SC2003(L,K)	TRANSISTOR		
Q5 ,6		*	DTA124ES	DIGITAL TRANSISTOR		
Q7 -9		*	DTC114ES	DIGITAL TRANSISTOR		
Q10 ,11			2SC945(A)(Q,P)	TRANSISTOR		
Q12		*	DTC114ES	DIGITAL TRANSISTOR		
Q13		*	DTA124ES	DIGITAL TRANSISTOR		
Q14 ,15		*	DTC114ES	DIGITAL TRANSISTOR		
Q17			2SC2003(L,K)	TRANSISTOR		
Q20			2SA992(F,E)	TRANSISTOR		
Q21 -23			2SC945(A)(Q,P)	TRANSISTOR		
69	2D		W02-0699-05	FM FRONT-END ASSY		
MAIN AMPLIFIER UNIT (X07-2350-10)						
C1 ,2			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C5 ,6		*	CE04LW0J221M	ELECTRO 220UF 6.3WV		

E: Scandinavia & Europe **K:** USA **P:** Canada
U: PX(Far East, Hawaii) **T:** England **M:** Other Areas
UE: AAFES(Europe) **X:** Australia

⚠ indicates safety critical components.

PARTS LIST

* New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
C7 ,8			CF92FV1H113J	MF 0.011UF J		
C9 ,10			CC45FSL1H470J	CERAMIC 47PF J		
C11 ,12			CC45FSL1H100D	CERAMIC 10PF D		
C13 ,14			CC45FSL1H470J	CERAMIC 47PF J		
C15 ,16			CC45FSL1H221J	CERAMIC 220PF J		
C17 ,18		*	CE04LW2A470M	ELECTRO 47UF 100WV		
C19 -22			CK45FF1H103Z	CERAMIC 0.010UF Z		
C23			C90-1333-05	NP-ELEC 22UF 10WV		
C24			CE04LW1C220M	ELECTRO 22UF 16WV		
C26		*	CE04LW1C330M	ELECTRO 33UF 16WV		
C29 ,30			CE04LW1C220M	ELECTRO 22UF 16WV		
R19 -22			RD14GB2E122J	FL-PROOF RD 1.2K J 1/4W		
R23 ,24			RD14GB2E181J	FL-PROOF RD 180 J 1/4W		
R29 -32			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R39 -42			RD14GB2E220J	FL-PROOF RD 22 J 1/4W		
R43 -46			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R47 -50			RD14GB2E2R2J	FL-PROOF RD 2.2 J 1/4W		
R51			RD14GB2E220J	FL-PROOF RD 22 J 1/4W		
R52			RD14GB2E100J	FL-PROOF RD 10 J 1/4W		
R61 -64			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
VR1 ,2			R12-1070-05	TRIMMING POT. (1K)BIAS ADJ		
D1 ,2			HZS5.1N(B2)	ZENER DIODE		
D1 ,2			RD5.1ES(B2)	ZENER DIODE		
D3 -8			1SS176	DIODE		
IC1			UPC1237HA	IC(POWER AMP)		
Q1 -4			2SC1845(F,E)	TRANSISTOR		
Q5 -8			2SC945(A)(Q,P)	TRANSISTOR		
Q9 -12			2SC1845(F,E)	TRANSISTOR		
Q13 -18			2SA1123(R,S)	TRANSISTOR		
Q19 ,20			2SC2631(R,S)	TRANSISTOR		
Q21 ,22			2SC3944(Q,R)	TRANSISTOR		
Q23 ,24			2SA1535(Q,R)	TRANSISTOR		
Q25 ,26			2SC2631(R,S)	TRANSISTOR		
Q27 -29			2SA992(F,E)	TRANSISTOR		
AUDIO UNIT (X09-2470-10)						
C3 ,4			CC45FSL1H221J	CERAMIC 220PF J		
C5 ,6			CE04LW0J102M	ELECTRO 1000UF 6.3WV		
C7 ,8			CF92FV1H203J	MF 0.020UF J		
C9 ,10			CF92FV1H562J	MF 5600PF J		
C11 ,12		*	CK45FB1H331K	CERAMIC 330PF K		
C13 ,14			CE04LW1V4R7M	ELECTRO 4.7UF 35WV		
C15 -34			CK45FB1H471K	CERAMIC 470PF K		
C35 ,36			CE04LW1HR47M	ELECTRO 0.47UF 50WV		
C37 ,38			CE04LW1V4R7M	ELECTRO 4.7UF 35WV		
C39 ,40			CE04LW1HR47M	ELECTRO 0.47UF 50WV		
C41 -44			CK45FB1H471K	CERAMIC 470PF K		
C45 ,46			CF92FV1H822J	MF 8200PF J		
C47 ,48			CF92FV1H152J	MF 1500PF J		
C49 ,50			CF92FV1H183J	MF 0.018UF J		
C51 ,52			CF92FV1H272J	MF 2700PF J		
C53 ,54			CF92FV1H563J	MF 0.056UF J		
C55 ,56			CF92FV1H822J	MF 8200PF J		
C57 ,58			CF92FV1H124J	MF 0.12UF J		
C59 ,60			CF92FV1H183J	MF 0.018UF J		

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

⚠ indicates safety critical components.

PARTS LIST

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
C61 ,62		*	CE04LW1HR33M	ELECTRO 0.33UF 50WV		
C63 ,64			CF92FV1H473J	MF 0.047UF J		
C65 ,66			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C67 ,68			CF92FV1H124J	MF 0.12UF J		
C69 ,70			CE04LW1H2R2M	ELECTRO 2.2UF 50WV		
C71 -75			CE04LW1V4R7M	ELECTRO 4.7UF 35WV		
C76			CE04LW1V100M	ELECTRO 10UF 35WV		
C77 ,78			CF92FV1H104J	MF 0.10UF J		
C79 ,80			CE04LW1HR47M	ELECTRO 0.47UF 50WV		
C81 ,82			CF92FV1H153J	MF 0.015UF J		
C83 ,84			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C85 ,86			CF92FV1H224J	MF 0.22UF J		
C87 ,88			CC45FSL1H101J	CERAMIC 100PF J		
C89 ,90			CF92FV1H473J	MF 0.047UF J		
C91 ,92			CF92FV1H104J	MF 0.10UF J		
C93 ,94			CC45FSL1H050C	CERAMIC 5.0PF C		
C95 -98			CF92FV1H104J	MF 0.10UF J		
C99			CE04LW0J101M	ELECTRO 100UF 6.3WV		
C100			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C101-110			CK45FF1H103Z	CERAMIC 0.010UF Z		
C111			CE04LW1C221M	ELECTRO 220UF 16WV		
C112-114			CK45FF1H103Z	CERAMIC 0.010UF Z		
C115			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C116-118			CK45FF1H103Z	CERAMIC 0.010UF Z		
C119		*	CE04LW1H470M	ELECTRO 47UF 50WV		
C120			CE04LW1A470M	ELECTRO 47UF 10WV		
C121		*	CE04LW1V102M	ELECTRO 1000UF 35WV		
C122-125			CE04LW1C470M	ELECTRO 47UF 16WV		
C126			CE04LW1A470M	ELECTRO 47UF 10WV		
C127			CE04LW1V100M	ELECTRO 10UF 35WV		
C128			CK45FB1H102K	CERAMIC 1000PF K		
C129			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C130,131			CE04LW1C331M	ELECTRO 330UF 16WV		
C132		*	CE04LW2A470M	ELECTRO 47UF 100WV		
C133,134			CK45FF1H223Z	CERAMIC 0.022UF Z		
C135			CK45FB1H102K	CERAMIC 1000PF K		
73	2D		E23-0149-05	TERMINAL		
E1	3D		E13-0235-05	PHONO JACK (2P)PHONO		
E2	3D		E13-0446-05	PHONO JACK (4P)CD/AUX,TAPE 1		
E3 ,4	3D		E13-0819-05	PHONO JACK (8P)TAPE,VIDEO		
E5	2D		E11-0165-05	MINIATURE PHONE JACK(SYS CONT)		
H	1C,2C		N09-0333-05	TAPPING SCREW (Ø3X12)		
CP1 ,2			R90-0187-05	MULTI-COMP 0.22X2 K 5W		
R112			RD14GB2E220J	FL-PROOF RD 22 J 1/4W		
R157,158			RS14KB3D4R7J	FL-PROOF RS 4.7 J 2W		
R161			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R172			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R184			RS14KB3D151J	FL-PROOF RS 150 J 2W		
R185			RS14KB3D221J	FL-PROOF RS 220 J 2W		
R186,187			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
K1	2C		S51-2078-05	MAGNETIC RELAY		
D1 -52			1SS133	DIODE		

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

⚠ indicates safety critical components.

PARTS LIST

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
D1 -52			1SS176	DIODE		
D53			HZS5.1N(B2)	ZENER DIODE		
D53			RD5.1ES(B2)	ZENER DIODE		
D54			HZS3.3N(B2)	ZENER DIODE		
D54			RD3.3ES(B2)	ZENER DIODE		
D55 ,56			RD18ES(B)	ZENER DIODE		
D57			HZS6.2N(B2)	ZENER DIODE		
D57			RD6.2ES(B2)	ZENER DIODE		
D58			1SS133	DIODE		
D58			1SS176	DIODE		
D59 ,60			HZS6.8N(B2)	ZENER DIODE		
D59 ,60			RD6.8ES(B2)	ZENER DIODE		
D61			HZS5.1N(B2)	ZENER DIODE		
D61			RD5.1ES(B2)	ZENER DIODE		
D62 ,63			1SS131	DIODE		
D62 ,63			1SS178	DIODE		
D64 ,65			HZS6.2N(B2)	ZENER DIODE		
D64 ,65			RD6.2ES(B2)	ZENER DIODE		
D66 -68			1SS131	DIODE		
D66 -68			1SS178	DIODE		
D69			RD4.7ES(B)	ZENER DIODE		
D70			HZS5.1N(B2)	ZENER DIODE		
D70			RD5.1ES(B2)	ZENER DIODE		
D71			HZS6.2N(B2)	ZENER DIODE		
D71			RD6.2ES(B2)	ZENER DIODE		
D76 ,77			1SS133	DIODE		
D76 ,77			1SS176	DIODE		
IC1			M5218P-A	IC(OP AMP X2)		
IC1			NJM4558D-A	IC(OP AMP X2)		
IC2			TC9164N	IC(16CH BILATERAL SELECTOR SW)		
IC3			TC9163N	IC(BILATERAL SWITCH X16)		
IC4		*	TC9162N	IC(ANALOG SWITCH ARRAY)		
IC5			M5218P-A	IC(OP AMP X2)		
IC5			NJM4558D-A	IC(OP AMP X2)		
IC6			LC7522	IC(7CH GRAPHIC EQUALIZER)		
IC7 ,8			M5229P	IC(7CH GRAPHIC EQULIZER)		
IC9			M5218P-A	IC(OP AMP X2)		
IC9			NJM4558D-A	IC(OP AMP X2)		
IC10,11			CXD1120P-1	IC(ELECTRONIC VOLUME)		
IC12			UPC78M15H	IC(VOLTAGE REGULATOR/ +15V)		
Q1 ,2			2SC2878	TRANSISTOR		
Q3 -6			2SK163(L,M)	FET		
Q7 -10			2SC2878	TRANSISTOR		
Q11			2SA733(A)(Q,P)	TRANSISTOR		
Q13 ,14			2SC945(A)(Q,P)	TRANSISTOR		
Q15 ,16			2SC1845(F,E)	TRANSISTOR		
Q17 ,18			2SC2878	TRANSISTOR		
Q19			2SC945(A)(Q,P)	TRANSISTOR		
Q20			2SA733(A)(Q,P)	TRANSISTOR		
Q21 ,22			2SC1845(F,E)	TRANSISTOR		
Q23 ,24			2SC2878	TRANSISTOR		
Q25 ,26			2SB941(Q,P)	TRANSISTOR		
Q27		*	2SD1929	TRANSISTOR		
Q28			2SA733(A)(Q,P)	TRANSISTOR		
Q29			2SA992(F,E)	TRANSISTOR		

E: Scandinavia & Europe **K**: USA **P**: Canada
U: PX(Far East, Hawaii) **T**: England **M**: Other Areas
UE: AAFES(Europe) **X**: Australia

⚠ indicates safety critical components.

PARTS LIST

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
Q30			2SD1266(Q,P)	TRANSISTOR		
Q31 ,32			2SA733(A)(Q,P)	TRANSISTOR		
Q33 ,34			2SD1266(Q,P)	TRANSISTOR		
Q35			2SA992(F,E)	TRANSISTOR		
Q36			2SC2003(L,K)	TRANSISTOR		
Q37 ,38			2SC3419(Y)	TRANSISTOR		
Q39 ,40			2SC2921*5	TRANSISTOR		
Q41 ,42			2SA1215*5	TRANSISTOR		
DISPLAY UNIT (X14-2130-10)						
D8	3B		B30-0431-05	LED(LN21CPH) POWER STAND BY		
C1			C91-0769-05	CERAMIC 0.01UF M		
C2 -4			C91-0745-05	CERAMIC 100PF K		
C5			CE04CW1A101M	ELECTRO 100UF 10WV		
C7		*	CE04CW1V220M	ELECTRO 22UF 35WV		
C8			CE04CW1A101M	ELECTRO 100UF 10WV		
C9			C91-0759-05	CERAMIC 0.0015UF M		
C10 ,11			C91-0745-05	CERAMIC 100PF K		
C12			CE04JW0J100M	ELECTRO 10UF 6.3WV		
C13			CE04CW1A101M	ELECTRO 100UF 10WV		
C14 ,15			CE04JW1C4R7M	ELECTRO 4.7UF 16WV		
C16			CE04JW0J100M	ELECTRO 10UF 6.3WV		
C21			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C23			CE04LW1V4R7M	ELECTRO 4.7UF 35WV		
C24 -30			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C31 ,32			CF92FV1H104J	MF 0.10UF J		
C33 ,34			CF92FV1H682J	MF 6800PF J		
C35 ,36			CF92FV1H153J	MF 0.015UF J		
C37			CC45FSL1H271J	CERAMIC 270PF J		
C38 ,39			CK45FB1H471K	CERAMIC 470PF K		
C40 ,41			CF92FV1H102J	MF 1000PF J		
C42 ,43			CF92FV1H272J	MF 2700PF J		
C44 ,45			CF92FV1H473J	MF 0.047UF J		
C51 ,52			CE04LW1C470M	ELECTRO 47UF 16WV		
C53		*	CE04LW0J471M	ELECTRO 470UF 6.3WV		
C54			CE04LW1V100M	ELECTRO 10UF 35WV		
C55		*	CE04LW0J471M	ELECTRO 470UF 6.3WV		
C56 ,57			CE04LW1V100M	ELECTRO 10UF 35WV		
C58		*	CE04LW0J471M	ELECTRO 470UF 6.3WV		
C61			CF92FV1H104J	MF 0.10UF J		
C62			CF92FV1H333J	MF 0.033UF J		
C63			CE04LW1C470M	ELECTRO 47UF 16WV	UUE	
C64		*	CE04LW0J222M	ELECTRO 2200UF 6.3WV		
C65			C90-1416-05	ELECTRO 18UF 5.5WV		
C66			CE04LW1H010M	ELECTRO 1.0UF 50WV		
E1 -3	1D	*	E13-0291-05	PHONO JACK (MONITOR OUT,VIDEO)		
L1			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)		
X1			L78-0209-05	RESONATOR (4.194MHZ)		
X1			L78-0218-05	RESONATOR		
CP1 ,2			R90-0461-05	MULTI-COMP 47KX6 J 1/6W		
CP3			R90-0227-05	MULTI-COMP 4.7KX6 J 1/6W		
CP4			R90-0453-05	MULTI-COMP 4.7K J 1/6W		
CP5		*	R90-0483-05	MULTI-COMP 100KX13 J 1/6W		
CP6		*	R90-0465-05	MULTI-COMP 100K13 J 1/6W		

E: Scandinavia & Europe **K**: USA **P**: Canada
U: PX(Far East, Hawaii) **T**: England **M**: Other Areas
UE: AAFES(Europe) **X**: Australia

⚠ indicates safety critical components.

PARTS LIST

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
CP7			R90-0278-05	MULTI-COMP 100KX7 J 1/6W		
CP8 ,9		*	R90-0482-05	MULTI-COMP 100KX4 J 1/6W		
CP10		*	R90-0484-05	MULTI-COMP 4.7KX12 J 1/6W		
CP11		*	R90-0482-05	MULTI-COMP 100KX4 J 1/6W		
R105		*	RS14KB3A271J	FL-PROOF RS 270 J 1W		
R169			RD14GB2E150J	FL-PROOF RD 15 J 1/4W	UUE	
VR1			R12-1070-05	TRIMMING POT.(1K)SPEC ANA SENS		
S1 -80	1A,2B		S40-1064-05	PUSH SWITCH (POWER,VOL,ETC)		
D1 -7			1SS133	DIODE		
D1 -7			1SS176	DIODE		
D9 -12			1SS133	DIODE		
D9 -12			1SS176	DIODE		
D15			1SS133	DIODE		
D15			1SS176	DIODE		
D17 -37			1SS133	DIODE		
D17 -37			1SS176	DIODE		
D38 -47			1SS131	DIODE		
D38 -47			1SS178	DIODE		
D48 -54			1SS133	DIODE		
D48 -54			1SS176	DIODE		
D61			HZS6.8N(B2)	ZENER DIODE		
D61			RD6.8ES(B2)	ZENER DIODE		
D62			1SS133	DIODE		
D62			1SS176	DIODE		
D65 -72			1SS133	DIODE		
D65 -72			1SS176	DIODE		
D73			HZS6.2N(B2)	ZENER DIODE		
D73			RD6.2ES(B2)	ZENER DIODE		
D81 -98			1SS133	DIODE		
D81 -98			1SS176	DIODE		
D99			HZS5.6N(B2)	ZENER DIODE		
D99			RD5.6ES(B2)	ZENER DIODE		
D100			HZS2.7N(B2)	ZENER DIODE		
D100			RD2.7ES(B2)	ZENER DIODE		
D111-118			1SS133	DIODE		
D111-118			1SS176	DIODE		
FL1	2A	*	FIP20AMW30	FLUORESCENT INDICATOR TUBE		
IC1		*	UPD75108CW-041	IC(MICROPROCESSOR)		
IC2 -5			UPA80C	IC(7CH TRANSISTOR ARRAY)		
IC6		*	UPD6300C	IC(FL LATCH DRIVER)		
IC7			LC7565	IC(GRAPHIC EQ FL DISPLAY DR)		
IC8 ,9			LB1294	IC(6CH DARLINGTON DRIVER)		
IC10,11			UPD4001BC	IC(NOR X6)		
IC12,13			UPD4066BC	IC(BILATERAL SWITCH X4)		
IC14-17			AN6556	IC(OP AMP X2)		
Q1 -4			DTA143EEF	DIGITAL TRANSISTOR		
Q7			2SC945(A)(Q,P)	TRANSISTOR		
Q8 -10			2SA999(E,F)	TRANSISTOR		
Q11			2SC1845(F,E)	TRANSISTOR		
Q12			2SC945(A)(Q,P)	TRANSISTOR		
Q13			2SC2003(L,K)	TRANSISTOR	KP	
Q13			2SD1266	TRANSISTOR	UUE	
Q14			2SC945(A)(Q,P)	TRANSISTOR		

E: Scandinavia & Europe **K**: USA **P**: Canada
U: PX(Far East, Hawaii) **T**: England **M**: Other Areas
UE: AAFES(Europe) **X**: Australia

⚠ indicates safety critical components.

PARTS LIST

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
E4	3B		W02-0692-05	ELECTRIC CIRCUIT MODULE		
FM FRONT END ASS'Y (W02-0699-05)						
D1 ,3			1SV110	DIODE		
TR1			2SK439	TRANSISTOR		
TR2 ,3			2SC3391	TRANSISTOR		
TR4			2SC3494	TRANSISTOR		

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

⚠ indicates safety critical components.

SPECIFICATIONS

AUDIO SECTION

Power Output

(Front)

125 watts per channel minimum RMS, both channel driven at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.008% total harmonic distortion

(Rear)

5 watts per channel minimum RMS, both channel driven at 8 ohms from 70 Hz to 10 kHz with no more than 0.9 % total harmonic distortion

(Front)

130 watts per channel minimum RMS, both channel driven into 8 ohms at 1kHz with no more than 0.008 % total harmonic distortion

Total Harmonic Distortion
- **(20 Hz-20,000 Hz, 8 ohms)** ..... 0.008% at 125 W
- **(1 kHz, 8 ohms)** ..... 0.002% at 125 W

Intermodulation Distortion ..... 0.008 % at 125 W

Input Sensitivity/Impedance
- **PHONO (MM)** ..... 3.0 mV/47 kohms
- **PHONO (MC)** ..... 0.3 mV/100 ohms
- **CD/AUX, TAPE** ..... 200 mV/47 kohms
- **VIDEO** ..... 250 mV/47 kohms

Frequency Response
- **PHONO (RIAA standard Curve)** ..... 20 Hz – 20,000 Hz... ±0.5 dB
- **TAPE, CD/AUX, VIDEO** ..... 10 Hz – 200,000 Hz... +0 dB, −3 dB

Signal to Noise Ratio
- **PHONO (MM)** ..... 82 dB
- **PHONO (MC)** ..... 63 dB
- **CD/AUX, TAPE** ..... 100 dB
- **VIDEO** ..... 90 dB

Graphic Equalizer
- **Center Frequency** ..... 60 Hz, 150 Hz, 400 Hz, 1 kHz, 2.4 kHz, 6 kHz, 15kHz
- **Control Range** ..... ±12 dB

VIDEO SECTION

Inputs VIDEO 1,2,3 ..... 1 Vp-p, 75 ohms unbalanced
Outputs VIDEO 1,2 ..... 1 Vp-p, 75 ohms unbalanced
MONITOR VIDEO OUT ..... 1 Vp-p, 75 ohms unbalanced

FM TUNER SECTION

Tuning Frequency Range ..... 87.5 MHz – 108 MHz
Antenna Impedance ..... 75 ohms unbalanced
Usable Sensitivity ..... 10.8 dBf (0.95 μV)
50 dB Quieting Sensitivity
- **MONO** ..... 14.2 dBf (1.4 μV)
- **STEREO** ..... 37.2 dBf (20 μV)

Signal to Noise Ratio at 65 dBf
- **MONO** ..... 80 dB
- **STEREO** ..... 74 dB

Total Harmonic Distortion at 1,000 Hz
- **MONO** 0.07%
- **STEREO** 0.1%

Frequency Response ..... 30 Hz – 15,000 Hz +0.5 dB, −2 dB
Stereo Separation ..... 50 dB at 1,000 Hz
Selectivity ..... 55 dB at 400 kHz
Capture Ratio ..... 1.0 dB
Image Rejection Ratio ..... 43 dB
IF Rejection Ratio ..... 86 dB
Spurious Rejection Ratio ..... 83 dB
AM Suppression Ratio ..... 62 dB

AM TUNER SECTION

Tuning Frequency Range
530 kHz – 1,610 kHz
(with the AM tuning interval set at 10 kHz)
531 kHz – 1,602 kHz
(with the AM tuning interval set at 9 kHz)

Usable Sensitivity ..... 10 μV (400 μV/m)
Signal to Noise Ratio ..... 50 dB
Total Harmonic Distortion ..... 0.3 %
Selectivity ..... 25 dB

GENERAL

Power Consumption ..... 4.5A... USA Model/400 W... others
AC Outlet ..... Switched × 3 (200 W) (Except for some areas)
Dimensions ..... 420(W) × 133(H) × 369(D) mm (16-9/16" × 5-1/4" × 14-1/2")
Weight ..... 10.4kg (22.9 lb)

Note:
We follow as policy of continuous advancements in development. For this reason specifications may be changed without notice.

Note :
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S.A. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

KENWOOD CORPORATION
Shionogi Shibuya Building, 17-5, 2-chome Shibuya, Shibuya-ku, Tokyo 150, Japan

KENWOOD U.S.A. CORPORATION
2201 East Dominguez Street, Long Beach, CA 90810;
550 Clark Drive, Mount Olive, NJ 07828, U.S.A.

KENWOOD ELECTRONICS CANADA INC.
P.O. Box 1075 959 Gana Court, Mississauga, Ontario, Canada L4T 4C2

KENWOOD ELECTRONICS BENELUX N.V.
Mechelsesteenweg 418 B-1930 Zaventem, Belgium

KENWOOD ELECTRONICS DEUTSCHLAND GMBH
Rembrucker-Str. 15, 6056 Heusenstamm, West Germany

TRIO-KENWOOD FRANCE S.A.
Hi-Fi·VIDEO·CAR Hi-Fi
13, Boulevard Ney, 75018 Paris, France

TRIO-KENWOOD U.K. LTD.
17 Bristol Road, The Metropolitan Centre, Greenford, Middx. UB6 8UP England

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.
4E Woodcock Place, Lane Cove, N.S.W. 2066, Australia

KENWOOD & LEE ELECTRONICS, LTD.
Wang Kee Building, 5th Floor, 34-37, Connaught Road, Central, Hong Kong